331.3
Un34w

Which Jobs for Young Workers?

THE LIBRARY OF THE
JAN 12 1942
UNIVERSITY OF ILLINOIS

No. 1—Employment of Young Workers in War Industries

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
October 1942

EMPLOYMENT OF YOUNG WORKERS

"wherever possible and reasonable"

IN his radio talk on October 12, 1942, the President said, "We are learning to ration materials; and we must now learn to ration manpower. The major objectives of a sound manpower policy are: . . . to use older men, and handicapped people, and more women, *and even grown boys and girls, wherever possible and reasonable,* to replace men of military age and fitness; . . ." The phrase "wherever possible and reasonable" demands that these grown boys and girls be used to the best possible advantage from all points of view. To protect them from injury and to direct their employment so far as possible into places where their skills may be developed and fully utilized is an objective of vital importance to the Nation.

This leaflet introduces a series issued by the Children's Bureau of the United States Department of Labor with the aim of assisting employers in attaining this objective in their use of young workers—an objective important both for efficient production and for preservation of future manpower. Separate leaflets deal with the accident and health hazards of various kinds of work in industries in which young persons are likely to be employed in wartime. They suggest the types of work suitable for 16- and 17-year-old boys and girls and point out the types of work that are particularly hazardous and therefore unsuitable for young persons of this age.

Protection of young workers by prohibiting their employment in especially hazardous occupations is not new. It has been an accepted function under most State child-labor laws, which either specify occupations that are prohibited for minors under 16 or under 18 years

of age or provide for such prohibition through administrative rulings. This method of protecting minors is also provided by the Fair Labor Standards Act, which gives to the Chief of the Children's Bureau power to find and declare occupations particularly hazardous for minors of 16 and 17 years. Such a declaration has the effect of establishing a minimum age of 18 years for employment under the act, whereas the basic minimum age under it is 16 years. Occupations declared particularly hazardous by the Children's Bureau up to this time are:

(1) All occupations in explosives plants;

(2) Motor-vehicle drivers and helpers;

(3) All occupations in coal mining with the exception of specified surface occupations;

(4) All occupations in logging and sawmilling with certain specified exceptions;

(5) Operation of woodworking machines and certain types of offbearing;

(6) Occupations involving exposure to radioactive substances.

With the greatly increasing employment in many industries of boys and girls of 16 and 17 years of age, there is need for additional guides to the effective use of young workers in ways that will safeguard their health and welfare. Existing Federal and State child-labor legislation provides much of the guidance needed but for many industries does not answer the question which jobs should be given to workers as young as 16 or 17 years. In order to meet this immediate need for new standards relating to hazards of occupations and to do it through a quick and flexible medium, the Children's Bureau is developing, for issuance in this leaflet series, advisory standards rather than proceeding only with the issuance of mandatory legal orders under the Fair Labor Standards Act. As advisory standards they are not

confined to interstate industries but are general in their application.

These advisory standards should be regarded as an emergency measure intended for protection of the Nation's young workers in this war period. They are based solely on the degree of hazard of the occupations covered, and have been prepared with the advice of employers, employees, and organizations interested in safety. Their use should assist in lowering the high accident rates to new employees. Voluntary observance of these recommendations is urged upon employment managers and others making placements, safety engineers analyzing the hazards of jobs, and those planning vocational-training programs. Observance of the standards will make possible the utilization of young workers needed in the war effort under conditions which safeguard their health and welfare.

The Children's Bureau offers its assistance to any establishment now employing or intending to employ young workers, in developing plans for placing them in the safer types of jobs. Address inquiries to the Children's Bureau, United States Department of Labor, Washington, D. C.

United States
Government Printing Office
Washington, D. C.

16—31741-1

331.3
Un34w
Cop. 1

THE LIBRARY OF THE
APR 17 1944
UNIVERSITY OF ILLINOIS

Which Jobs for Young Workers?

No. 1—Advisory Standards for the Safe Employment of Young Workers

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
Revised March 1944

ADVISORY STANDARDS FOR THE SAFE EMPLOYMENT OF YOUNG WORKERS

INTO the Nation's war industries are pouring thousands of boys and girls of 16 and 17 years, drawn by shortages of manpower. They are taking the places of men going into military service at a time when production must be maintained at a high level. This great influx of young workers into war jobs, and other work as well, creates new problems. At the top of the list, perhaps, is how to protect them from injury on the job. As a guide for industries employing or about to employ 16- and 17-year-old boys and girls, the Children's Bureau suggests the adoption of a three-point program for their safety, good health, and general well-being:

(1) Employment in the Least Hazardous Jobs.

(2) A Safe and Healthful Place To Work.

(3) Thorough Training and Close Supervision.

All three points, as they apply broadly to industrial employment of young workers, are discussed in this revised introduction to the series, WHICH JOBS FOR YOUNG WORKERS? Other leaflets in the series, listed on page 8, suggest where 16- and 17-year-old boys and girls may be employed with comparative safety and also point out the types of work that are particularly hazardous for these young people.

Many employers are interested in the future development and training of young people and recognize the importance to them of a completed education. So that boys and girls desiring to work may continue their schooling, employers should place them on part-time rather than full-time shifts. The War Manpower Commission, the U. S. Office of Education, and the Children's Bureau of the U. S. Department of Labor have issued a joint statement

on policies and standards for the part-time employment of school youth which provides guides for establishing combined work and school programs. Copies may be requested from the Children's Bureau.

Young people can contribute their best to industry if they are placed in jobs that develop their abilities and interests. Many plants have apprentice and upgrading training programs that take cognizance of individual aptitudes and provide close supervision. Schools can often supply information on abilities and interests of prospective employees for effective use in training and job placement.

The young worker usually lacks the caution and judgment that characterize a safe worker. He is not so well developed physically as an adult and is undergoing rapid physical, mental, and emotional changes. He is more likely, therefore, to be injured than an adult. It is widely accepted that young persons are more susceptible to injury from industrial poisons than mature individuals. For these reasons special precautions should be taken to assure their safety and health by assigning them to the safest jobs, by providing the right working environment, and by giving them thorough training and close supervision.

Employment in the Least Hazardous Jobs

The War Manpower Commission declared in its statement, Policy on Employment of Youth Under 18 Years of Age, issued January 30, 1943, that youth of these ages should be employed only "in work suited to their age and strength, avoiding especially occupations that are hazardous or detrimental to health or welfare." This aim to protect young workers by placing them in the least hazardous jobs is, however, not new. Most State child-labor laws either specify occupations that are prohibited for minors under 16 or under 18 years

of age or provide for such prohibition through administrative rulings.

The Fair Labor Standards Act also provides this type of protection of minors. The act gives to the Chief of the Children's Bureau power to find and declare occupations particularly hazardous for minors of 16 and 17 years. Such a declaration has the effect of establishing a minimum age of 18 years for employment in these dangerous occupations, whereas the basic minimum age under the act is 16 years. Occupations already declared particularly hazardous by the Children's Bureau are listed on page 8.

Some States have established minimum-age standards for work in dangerous occupations. Details may be obtained from the State department of labor or from whichever department has jurisdiction over these matters. In some States the employer is required to pay extra compensation when a minor is injured while illegally employed; in other States the workmen's compensation law excludes minors illegally employed, thus leaving the employer to face the possibility of a damage suit for negligence.

Many hazardous industries or occupations are not specifically covered by either State or Federal laws establishing minimum ages, and employers need additional help to place their teen-age workers in the safest possible jobs. To supply this information quickly through a flexible medium, the Children's Bureau has developed this leaflet series of advisory standards supplementing the mandatory legal orders issued under the Fair Labor Standards Act. These advisory standards, unlike mandatory orders, are not confined to interstate industries but are general in their application. They are based on the degree of hazard of the occupations covered, and have been prepared with the advice of employers, workers, and organizations interested in safety and health. Their use should assist in lowering the high

accident rates to new employees. Plant employment officials, safety engineers, placement agencies, and those planning vocational-training programs are urged to observe these recommendations.

Advisory standards issued to date are listed on page 8. Leaflets covering other industries or occupations will be issued from time to time.

A Safe and Healthful Place To Work

A safe and healthful place to work is the foundation of every worth-while plant safety program. If this is true of adults, it is doubly true of teen-age workers who have not yet learned to protect themselves and must depend for protection on the physical safeguards afforded them.

A safe workplace involves many factors: It means well-designed buildings, adequate floor space, suitable lighting, and thorough ventilation. It involves good housekeeping such as safe floors, well-marked and maintained aisles, proper flow of material, and disposal of scrap. And, perhaps most important of all, it means properly guarded machinery and equipment.

All machines should, of course, be properly guarded for all workers, but guarding is particularly necessary for young and inexperienced operators. Injuries caused by machines, particularly at the point of operation, are usually more serious than those due to other causes, such as hand tools.

If additional information is desired on eliminating physical hazards, State departments of labor and of health and other agencies having information on industrial safety and health hazards should be consulted. Advice may be obtained also from the Division of Labor Standards of the U. S. Department of Labor, and from the U. S. Public Health Service.

Thorough Training and Close Supervision

Merely placing young workers in the least hazardous occupations and giving them a safe place in which to work do not assure protection from injury. Youth itself is a factor that cannot be overlooked. Thorough training and continuous, close supervision are therefore essential.

Training and supervision are usually the responsibility of the foreman or leadman, and it would be well to assign young workers to one who likes young people and who, therefore, would be apt to do a good job. The impression that the immediate supervisor makes will deeply influence the young worker's impression of the entire plant.

Foremen should be instructed about the supervision of young workers, about their need for more attention than adults and possibly for special induction procedures. This information could be given at foremen's meetings. Foremen should also be instructed about the conditions under which minors may work. The instructions, best given in writing, would contain a statement of company policy on the employment of minors as to hours of work, permissible shifts, school attendance, and like matters. Information on the requirements of Federal and State labor and school-attendance laws should be included, and also on occupations or types of work that minors should not be permitted to perform.

The plant may represent an entirely new environment to the boy or girl who is coming from school without any previous industrial experience. No inexperienced worker should be permitted to start a job until his supervisor is sure that he knows how to do the work safely and realizes that the safe way is the right way. Before instructing the young worker, the supervisor should organize the job for training purposes by dividing it into its major parts, listing the principal steps, and selecting the key points. Steps in training must be taken in

order, patiently and slowly. The supervisor must put himself in the place of the inexperienced worker. What seems simple and easy to the supervisor may be very difficult for others. He needs not only *to tell* the workers how to do the job but *to show* the worker how, by doing it himself. The supervisor in turn watches the worker do the job, checking and supervising him until he is sure that the worker knows how.

Constant supervision is required also if young people are to acquire workmanlike habits of good housekeeping and the use of proper tools. Being naturally adventurous, a youngster may neglect to use guarding and protective equipment, he may attempt to lift objects too heavy for him or try to clean and oil machinery in motion, or he may indulge in horseplay. He may become overfatigued; excessive fatigue not only reduces his efficiency but may lead to accidents, and, if long continued, may damage his health. To encourage safe work habits, young workers should be assigned to jobs with older workers.

Employment or age certificates should be obtained for workers as young as 16 or 17 and should be kept on file in the plant employment office. A special badge worn by the young worker would identify him to the foreman or safety engineer as a minor if he is inadvertently assigned to an occupation contrary to law or company policy and will also indicate that he may need special supervision.

Additional information on training and supervision is available from other governmental agencies, such as the War Manpower Commission, the U. S. Office of Education, and local U. S. Employment Service offices.

The Children's Bureau offers its assistance to establishments wishing to develop this three-point program for the safety of young workers. Address inquiries to the Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)

No. 2—Advisory Standards for Shipbuilding.

No. 3—Advisory Standards for Lead and Lead-Using Industries.

No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.

No. 6—Advisory Standards for Welding Occupations.

No. 7—Advisory Standards for the Operation of Metal-Working Machines.

No. 8—Advisory Standards for the Aircraft Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.

No. 2—Motor-vehicle drivers and helpers.

No. 3—Occupations in coal mining.

No. 4—Occupations in logging and sawmilling.

No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.

No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications on this page are available upon request to the Children's Bureau.

U. S. GOVERNMENT PRINTING OFFICE 16—38669-1

331.3
Un34w

Which Jobs for Young Workers?

No. 2—Advisory Standards for Shipbuilding

The young worker of today is the skilled worker of tomorrow—Protect him from injury

U. S. Department of Labor
Children's Bureau
December 1942

WHICH JOBS FOR YOUNG WORKERS IN SHIPBUILDING?

WAR has brought about a tremendous expansion of shipbuilding and ship repairing. To satisfy the demand for additional labor where adult help is becoming scarce, many more boys 16 and 17 years of age are being employed. But because much shipbuilding is extra hazardous—entirely too dangerous for young and inexperienced workers—there is great need for special consideration by shipyards of the kinds of work to be given to these younger workers if they are to be protected from injury. A definite program in this direction is essential to prevent injuries that mean lost time and lost production, and often permanent loss to the industry of skilled workers who are badly needed.

On the basis of a recent study of the hazards of shipyard employment and of the labor supply available for the industry, the suggestions contained in this leaflet are presented as a guide for placing young workers under 18 years of age in the shipbuilding industry. It is recognized that the industry needs good material from which to train skilled and semiskilled workers, and that some young persons of 16 and 17 may be of special value to the industry because of their particular aptitudes or education.

Because the real labor shortage in the shipyards is in skilled workers or persons who can be trained to be skilled workers, many shipyards recognize the value of high-school training for their beginners and are holding to a policy of employing no boys under 18 who are not high-school graduates. With an eye to their greatest need they use these younger workers in places where they can be developed into skilled or semiskilled craftsmen, not as laborers or in dead-end jobs. This is a policy that all shipyards might well adopt to underlie plans for workers 16 and 17 years of age.

The general principles that should be followed in the employment of these young and inexperienced workers are the following:

1. *General plan for placement and training.*

In general, young workers should be employed as apprentices, mechanic learners, helpers, or as trainees, and a definite plan for their training should be followed. Training should include especially careful supervision, since young and inexperienced workers are in greater need of supervision and direction than more experienced workers. Safety instruction should also be an important part of the supervision and training of all new workers.

The following facts should be borne in mind in making plans for employment of workers 16 and 17 years of age:

(*a*) Work on the ways is the most hazardous of all shipbuilding work—much more hazardous than similar work done on the shore or in the shops.

(*b*) Fitting-out work on board ship is more hazardous than work in the fitting-out shops.

(*c*) Repair work in general is more hazardous than new construction.

2. *Kinds of work to which workers 16 and 17 years of age should be limited during the first 6 months or year of their employment.*

(*a*) Laying-out, bolting-up, welding, or working as helper on subassembly in the yard or in the plate shop.

(*b*) Work in the mold loft, pipe shop, copper shop, sheet-metal shop, or electrical shop.

(*c*) New or repair work by fitting-out workers on board ship when not done in connection with rigging or the handling of heavy materials.

(*d*) Doing bench work, operating light machines, or working as helper to the operator of heavy machines in the machine shop.

(*e*) Hand blacksmithing in the forge or blacksmith shop.

(*f*) Work in the coreroom or bench molding in the foundry.

(*g*) Work as storeroom or toolroom attendant.

(*h*) Clerical work in the administrative depart-

ments; work as draftsmen or tracers in the engineering and drafting departments, as messengers in the administrative office of any fabrication, construction, or service department; and at other jobs not directly connected with the actual building of ships.

3. *Kinds of work in which, because of their specially hazardous nature, workers under 18 years of age should not be employed at any time.*

(*a*) All construction work on the shell and any construction work on the hull or superstructure that involves rigging, erecting, or the handling of heavy materials.

(*b*) All fitting-out work performed during construction or after launching that involves rigging, erecting, or the handling of heavy materials.

(*c*) Hull-repair work that involves rigging, erecting, or the handling of heavy materials or work in the cleaning of tanks.

(*d*) Work in the building or preparation of the ways or staging, including that done by carpenters, stage builders, or shipwrights.

(*e*) Work in the operation of drydocks or marine railways.

(*f*) Work in certain shops as follows:

(1) Work on the bending slab, in the handling of heavy materials, and in the operation of heavy punching, shearing, or bending machines in the plate and shape shop and in the boiler shop.

(2) Heavy work in the foundry, such as floor molding and the handling of heavy flasks and castings, and all work involving the handling of hot metal.

(3) The operation of woodworking machines in the pattern shop, joiner shop, or carpenter shop, except as permitted by Hazardous-Occupations Order No. 5 under the Fair Labor Standards Act.

(4) The operation of heavy machines in the machine shop.

(*g*) Grinding or dry-mixing of paint and spray painting.

(*h*) Transportation or storage of steel and lumber or of heavy prefabricated units.

4. Observance of legal standards.

Where legal standards under State and Federal laws are applicable to employment of young workers in shipyards, these should be fully observed.

The Children's Bureau will be glad to assist shipyards employing workers under 18 years of age, or contemplating such employment, in developing policies for suitable use of these workers. Address inquiries to the Director, Industrial Division, Children's Bureau, U. S. Department of Labor, Washington, D. C.

The close relationship between safety and efficiency warrants the careful observance of this advisory standard at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

This advisory standard is an emergency measure to protect young workers during this war period. Its issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestion contained in this advisory standard.

This advisory standard for the employment of young workers in shipbuilding has been prepared by the Children's Bureau of the United States Department of Labor in cooperation with the Navy Department, the Maritime Commission, and the Federal Committee on Apprenticeship, and has the approval of these agencies. Employers are urged to adopt the principles set forth as an aid in the reduction of accidents to their young workers.

U. S. GOVERNMENT PRINTING OFFICE 16—31627-1

331.3
Un34w

THE LIBRARY OF T
FEB 11 194
UNIVERSITY OF ILL

Which Jobs for Young Workers?

No. 3—Advisory Standards for Lead and Lead-using Industries

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
December 1942

WHICH JOBS FOR YOUNG WORKERS IN LEAD AND LEAD USING INDUSTRIES?

LEAD is used extensively in industry under normal circumstances, and even more extensively in wartime. In 1941 consumption records for lead were broken. In spite of notable progress in control of the hazard of exposure to lead and its compounds, lead remains one of the leading causes of occupational disease.

Young persons are being employed in increasing numbers today and, more than ever before, they are being called upon to fill jobs ordinarily held by adults. Many of these jobs are suitable and reasonably safe for young workers; but some are not, and among the latter are occupations involving exposure to lead dust or fumes.

The maximum permissible limit of 1.5 milligrams of lead per 10 cubic meters of air, which has been widely accepted, represents good engineering practice and provides a reasonably safe working condition for adults unless they are unusually susceptible. But young workers 16 and 17 years of age are considered to be in general more susceptible than older workers and are less likely to appreciate that special safeguards and personal cleanliness are necessary to protect themselves from the dangers from lead and its compounds.

Especially under conditions of relative labor shortage employers will want to reserve the more hazardous occupations for the mature workers, who are, as a group, better adapted for such employment physically and better prepared to protect themselves because of their experience and more careful habits of work. Careful placement of young workers that protects them from the hazard of occupational disease not only will promote their welfare but will help to meet

the demand for such labor and will increase the number of young men that will later be fit for military and industrial service.

WORK IN WHICH NO WORKERS UNDER 18 YEARS OF AGE SHOULD BE EMPLOYED

The following list is illustrative and necessarily incomplete.

1. *Work in connection with the production of white lead or other salts or oxides of lead.*

   There is a considerable evolution of dust in some of the workrooms of plants producing lead salts or oxides. Certain occupations in themselves in these establishments are not accompanied by the evolution of lead dust or fume, such as the milling of white lead after it is incorporated in oil, but they may be accompanied by exposure to lead dust arising in other departments. There is, therefore, a potential hazard in all production jobs, and a minimum age of 18 should be observed except for work in offices which are fully segregated and free from the possibility of contamination with appreciable concentrations of lead dust.

2. *Work in workrooms in which lead salts or oxides are used in such a state that they give rise to lead dust in the air.*

   (*a*) Compounding and batch-mixing in the manufacture of rubber, paint, lead-containing insecticides, linoleum, and other products into which lead compounds enter;

   (*b*) The manufacture of storage batteries;

   (*c*) Pottery manufacture, where lead glaze is made and used and lead colors are used in decorating;

   (*d*) Spray painting and vitreous enameling when lead-containing materials are used;

(*e*) Other occupations in which lead dust may arise from the materials of work, such as storage battery repair and salvage, junk yard work, sanding of lead-covered surfaces, and the like.

3. *Work in occupations in which metallic lead is regularly used in the molten state.*

   (*a*) Lead burning;

   (*b*) Cable covering;

   (*c*) Casting stereotype plates and similar work in the printing trades;

   (*d*) Foundry work with lead-bearing metals;

   (*e*) Cutting of lead-coated metals;

   (*f*) Soldering, when carried on continuously as a regular part of the process of production.

4. *Work in connection with tetraethyl lead.*

WORK IN LEAD INDUSTRIES SUITABLE FOR 16- AND 17-YEAR-OLD WORKERS

The handling of lead salts or oxides which are completely incorporated in solution or suspension, or are in impervious containers does not involve appreciable hazard, *provided* the workrooms are segregated from those in which lead compounds are used in the dry state and are essentially free from lead in the atmosphere. Work in other workrooms in which no lead is handled, if fully segregated, is also suitable. Types of work done under such conditions include, for example:

1. *Can filling and labeling in paint factories.*
2. *Marking and testing of storage-battery cases.*
3. *Shipping-department work.*
4. *Machine-shop, woodworking-shop, and other shop work not covered by existing regulations.*
5. *Laboratory work.*
6. *Office work.*

16—31915-1

OBSERVANCE OF LEGAL STANDARDS

Where legal standards under State and Federal laws are applicable to employment of young workers in occupations involving exposure to lead and its compounds, these should be fully observed.

In specific situations in which the illustrations are not directly applicable, it is suggested that further information regarding the suitability of the work for young persons under 18 years of age should be obtained from State departments of labor or from the Children's Bureau, U. S. Department of Labor, Washington, D. C.

The close relationship between safety and efficiency warrants the careful observance of this advisory standard at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

This advisory standard is an emergency measure to protect young workers during this war period. Its issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in this advisory standard.

United States
Government Printing Office
Washington, D. C.

16—31915-1

331.3
Un34w

THE LIBRARY OF THE
FEB 26 1943
UNIVERSITY OF ILL.

Which Jobs for Young Workers?

No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
December 1942

WHICH JOBS FOR YOUNG WORKERS IN EMPLOYMENT INVOLVING EXPOSURE TO CARBON DISULFIDE?

The principal use of carbon disulfide is in the manufacture of viscose rayon and allied products (sausage casings, cellophane, and so forth). Exposure to carbon disulfide in sufficient concentration may cause severe poisoning, with only slight and indefinite symptoms at the onset. As a result of advances in the methods of control, there is no longer the degree of hazard from carbon disulfide in industry that at one time existed. Indeed, industrial hygienists generally are of the opinion that in some modern plants which have developed both engineering and medical control to a high level, the concentration of carbon disulfide in the atmosphere is generally maintained well below the maximum permissible limit of 20 parts per million proposed by the American Standards Association and accepted in many States. Moreover, pre-employment examination and, to some extent, periodic physical examinations are used in order to keep from exposure any individuals considered to have unusual susceptibility and to check the adequacy of engineering control.

It has generally been considered good practice in viscose-rayon plants not to employ persons under 18 years of age in departments in which potential exposure to carbon disulfide exists. The present relative labor

shortage in many regions of the country and the probability that the labor-supply situation will become even more difficult, however, lead to consideration of the possibility of increased employment of persons 16 and 17 years of age. The Children's Bureau is issuing in this leaflet examples of occupations for which a minimum age of 18 years is suggested because of potential exposure to carbon disulfide, and examples of related occupations which are considered safe and suitable for the employment of young workers 16 and 17 years old. The policy now generally in effect in the viscose-rayon industry against the employment of minors under 18 in departments with carbon-disulfide exposure should be maintained, but, wherever it is necessary, minors 16 and 17 years of age may well be employed in many occupations in departments free from exposure to carbon disulfide.

The following lists are illustrative and necessarily incomplete.

Minors 16 and 17 years old may be suitably employed in the following work places or occupations:

Coner, winder or spooler, twister, reeler of finished yarn.
Inspector of cones, skeins, or bobbins of finished yarn.
Wrapper of cones or skeins.
Trucker of finished yarn.
Filter wrapper.
Assembly of jets.
Shop work, except for occupations already subject to an 18-year minimum age.
Stock room.
Shipping.
Laboratory work.
Office work.

Minors under 18 years of age should not be employed in the following work places or occupations which involve exposure to carbon disulfide:

Handling of carbon disulfide.
Churn or barratte room.
Mixing room.
Ripening and filtration room.
Spinning room—work as pump tester, filter changer, and all other work carried on in the spinning room.
Acid collection, acid correction, and related processes.
Cake cabinets.
Cake, skein, or bobbin washing.
Cake wrapping.
Trucker of unprocessed cakes and bobbins.
Reeling of unprocessed yarn.

If occupations included in the first list are carried on in workrooms covered by the second list, they also should be subject to an 18-year minimum age; for example, filter wrapping carried on directly in the spinning room.

The same type of classification applies to occupations in other industries. An 18-year minimum age should prevail in workrooms where carbon disulfide is produced. In the rubber-manufacturing industry or in the repair of rubber articles, minors under 18 should be excluded from workrooms in which carbon disulfide is used or rooms in which material freshly dipped in carbon disulfide is dried or handled. When carbon disulfide is used in the open air, as for example, in the fumigation of corn bins, minors under 18 should not be employed about the place where this operation is being carried on.

Where legal standards under State and Federal laws are applicable to employment

of young workers in occupations involving exposure to carbon disulfide these should be fully observed.

In specific situations in which the illustrations are not directly applicable, it is suggested that further information regarding the suitability of the work for young people under 18 years of age should be secured from State departments of labor or from the Children's Bureau, U. S. Department of Labor, Washington, D. C.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

498284°—42 U. S. GOVERNMENT PRINTING OFFICE: 1942

331.3
Un34w

THE LIBRARY
APR 12
UNIVERSITY OF

Which Jobs for Young Workers?

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
February 1943

WHICH JOBS FOR YOUNG WORKERS WHERE CHLORINATED SOLVENTS ARE USED?

CHLORINATED hydrocarbon solvents have come into increasing use in industry in recent years. Because of certain specific advantages, they are very widely used as degreasers for metals. They also find use as refrigerants, fumigants, dry cleaners, paint removers, fire extinguishers, and in various other chemical and manufacturing processes. The use of these solvents, particularly as degreasers, is comparatively new and many users are not fully aware of their potential hazard. It is the aim of this pamphlet to point out the hazards of exposure to these chlorinated hydrocarbon solvents and particularly to suggest the kinds of work in which young workers should not be employed.

There are many compounds in this group, some of those important commercially being: Carbon tetrachloride, trichlorethylene, perchlorethylene (tetrachlorethylene), and ethylene dichloride. Other members of the group frequently used in industry are: Methyl chloride, chloroform, tetrachlorethane, and pentachlorethane.

As many manufacturers use only trade names on labels without identifying information, some users of chlorinated solvents probably do not know the nature of the products. Identifying labels attached by the manufacturers are highly desirable. If the products are not so labeled, it is important for users to obtain from suppliers the correct chemical designations. If there is doubt with regard to the chemical composition of any product or its toxicity the department or division of the State government concerned with industrial hygiene should be consulted.

All these compounds have an anesthetic effect which is most familiar in the case of chloroform. Chloroform itself, however, is less used in industry than the other members of the group listed. Damage to the liver and kidneys is liable to follow exposure to any of these compounds. Their toxicity varies markedly, but all are dangerous to a degree depending upon the amount of absorption.

One of the important uses of chlorinated solvents is in degreasing metal parts. By one method the object to be cleaned is dipped or washed in an open tank containing the cold solvent. The more modern method is vapor degreasing, in which the material to be cleaned is placed in heated vapor or liquid, the vapor condensing on the cold metal and dissolving the grease or oil. When the vapor, which is heavier than air, rises to a given point well below the top, the heat is turned off automatically and the vapor cannot rise above this point. The maintenance of this constant vapor line prevents excessive mixing of the solvent vapor with the air in the room. When properly designed, installed, and operated, degreasing machines are generally capable of preventing the accumulation of excessive concentrations of the solvent in the air. However, improper design or installation, overloading, poor maintenance, or unsafe methods of operation may result in exposure of operators to high concentrations of toxic vapors. Lack of special precautions, such as use of a respirator or mask, when the tank is being cleaned, is especially dangerous. Home-made degreasing apparatus also may permit the escape of excessive amounts of vapor into the air.

With the use of modern degreasing apparatus the potential hazard from the vapor of chlorinated solvents is confined largely to the operator of the machine, except in small workrooms without ventilation or with ineffectual ventilation, in which case the hazard may extend to other workers in the room. Where

chlorinated solvents are used in a manufacturing process, or for cleaning by cold dipping, there is a likelihood that the hazard from the vapors would extend to other employees in the immediate vicinity of the place where used.

Maximum permissible limits of air contamination for some of these compounds have been suggested by industrial hygienists and are included in recommendations of industrial-hygiene divisions in a few States. It is generally believed that if air concentrations are held below the recommended limits there is relatively little hazard for exposed persons except those of unusual susceptibility. But since compliance with these recommendations is now largely voluntary and incomplete, compliance alone cannot be depended upon to provide the protection needed, especially for young workers, who may be more susceptible than adults.

In working with degreasing machines and at other processes involving the use of chlorinated solvents, protection of personnel requires, in addition to satisfactory engineering and medical control, the observance of rules of safe practice, including the use of some type of personal protective apparatus for certain jobs. Because minors 16 and 17 years of age cannot be depended on to conduct themselves so carefully, employers should establish a minimum age of 18 years for employment in all occupations in which exposure to excessive concentration of chlorinated solvents is possible. To put this policy into effect, it is recommended that—

Minors 16 and 17 years of age should not be employed in the following kinds of work involving exposure to chlorinated hydrocarbon solvents:

1. As operators of degreasing machines, and in such related operations as cleaning degreasing machines.
2. In, or in connection with cleaning of metal by cold dipping.

3. In dry-cleaning of clothing, furs, and the like, involving the use of chlorinated hydrocarbon solvents or mixtures containing these compounds.
4. In charging of fire extinguishers, and charging and repairing of refrigerators.
5. In any work place where chlorinated hydrocarbon solvents are used regularly in the manufacturing process, as in the processing of fats and in the chemical, rubber, and petroleum industries.

The fact that chlorinated solvents are used in an industry does not mean that a minimum age of 18 should be established for all occupations in that industry. The recommendations should be applied only to those occupations or work places involving actual exposure to harmful fumes, as illustrated by the above list.

In specific situations to which the list is not directly applicable, it is suggested that further information regarding the suitability of the work for young people under 18 years of age be obtained from State departments of labor, State departments of health, or the Children's Bureau, U. S. Department of Labor, Washington, D. C.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

U. S. GOVERNMENT PRINTING OFFICE 16—33141-1

331.3
Un34w
cop.1

THE LIBRARY OF THE
MAR 24
UNIVERSITY OF ILLINOIS

Which Jobs for Young Workers?

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
January 1944

WHICH JOBS FOR YOUNG WORKERS WHERE CHLORINATED SOLVENTS ARE USED?

CHLORINATED hydrocarbon solvents have come into increasing use in industry in recent years. Because of certain specific advantages, they are very widely used as degreasers for metals. They also find use as refrigerants, fumigants, dry cleaners, paint removers, fire extinguishers, and in various other chemical and manufacturing processes. The use of these solvents, particularly as degreasers, is comparatively new and many users are not fully aware of their potential hazard. It is the aim of this pamphlet to point out the hazards of exposure to these chlorinated hydrocarbon solvents and particularly to suggest the kinds of work in which young workers should not be employed.

There are many compounds in this group, some of those important commercially being: Carbon tetrachloride, trichlorethylene, perchlorethylene (tetrachlorethylene), and ethylene dichloride. Other members of the group frequently used in industry are: Methyl chloride, chloroform, tetrachlorethane, and pentachlorethane.

As many manufacturers use only trade names on labels without identifying information, some users of chlorinated solvents probably do not know the nature of the products. Identifying labels attached by the manufacturers are highly desirable. If the products are not so labeled, it is important for users to obtain from suppliers the correct chemical designations. If there is doubt with regard to the chemical composition of any product or its toxicity the department or division of the State government concerned with industrial hygiene should be consulted.

All these compounds have an anesthetic effect which is most familiar in the case of chloroform. Chloroform itself, however, is less used in industry than the other members of the group listed. Damage to the liver and kidneys is liable to follow exposure to any of these compounds. Their toxicity varies markedly, but all are dangerous to a degree depending upon the amount of absorption.

One of the important uses of chlorinated solvents is in degreasing metal parts. By one method the object to be cleaned is dipped or washed in an open tank containing the cold solvent. The more modern method is vapor degreasing, in which the material to be cleaned is placed in heated vapor or liquid, the vapor condensing on the cold metal and dissolving the grease or oil. In the vapor degreasing method a more or less constant vapor line is maintained well below the top of the tank. The maintenance of this constant vapor line prevents excessive mixing of the solvent vapor with the air in the room.

When properly designed, installed, and operated, degreasing machines are generally capable of preventing the accumulation of excessive concentrations of the solvent in the air. However, improper design or installation, overloading, poor maintenance, or unsafe methods of operation may result in exposure of operators to high concentrations of toxic vapors. Lack of special precautions, such as use of a respirator or mask, when the tank is being cleaned, is especially dangerous. Home-made degreasing apparatus also may permit the escape of excessive amounts of vapor into the air.

With the use of modern degreasing apparatus the potential hazard from the vapor of chlorinated solvents is confined largely to the operator of the machine, except in small workrooms without ventilation or with ineffectual ventilation, in which case the hazard may extend to other workers in the room. Where

chlorinated solvents are used in a manufacturing process, or for cleaning by cold dipping, there is a likelihood that the hazard from the vapors would extend to other employees in the immediate vicinity of the place where used.

Maximum permissible limits of air contamination for some of these compounds have been suggested by industrial hygienists and are included in recommendations of industrial-hygiene divisions in a few States. It is generally believed that if air concentrations are held below the recommended limits there is relatively little hazard for exposed persons except those of unusual susceptibility. But since compliance with these recommendations is now largely voluntary and incomplete, compliance alone cannot be depended upon to provide the protection needed, especially for young workers, who may be more susceptible than adults.

In working with degreasing machines and at other processes involving the use of chlorinated solvents, protection of personnel requires, in addition to satisfactory engineering and medical control, the observance of rules of safe practice, including the use of some type of personal protective apparatus for certain jobs. Because minors 16 and 17 years of age cannot be depended on to conduct themselves so carefully, employers should establish a minimum age of 18 years for employment in all occupations in which exposure to excessive concentration of chlorinated solvents is possible. To put this policy into effect. it is recommended that—

Minors 16 and 17 years of age should not be employed in the following kinds of work involving exposure to chlorinated hydrocarbon solvents:

1. As operators of degreasing machines, and in such related operations as cleaning degreasing machines.
2. In, or in connection with, cleaning of metal by cold dipping.

3. In dry-cleaning of clothing, furs, and the like, involving the use of chlorinated hydrocarbon solvents or mixtures containing these compounds.

4. In charging of fire extinguishers, and charging and repairing of refrigerators.

5. In any work place where chlorinated hydrocarbon solvents are used regularly in the manufacturing process, as in the processing of fats and in the chemical, rubber, and petroleum industries.

The fact that chlorinated solvents are used in an industry does not mean that a minimum age of 18 should be established for all occupations in that industry. The recommendations should be applied only to those occupations or work places involving actual exposure to harmful fumes, as illustrated by the above list.

In specific situations to which the list is not directly applicable, it is suggested that further information regarding the suitability of the work for young people under 18 years of age be obtained from State departments of labor, State departments of health, or the Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)
No. 2—Advisory Standards for Shipbuilding.
No. 3—Advisory Standards for Lead and Lead-Using Industries.
No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.
No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.
No. 6—Advisory Standards for Welding Occupations.
No. 7—Advisory Standards for the Operation of Metal-Working Machines.
No. 8—Advisory Standards for the Aircraft Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

U. S. GOVERNMENT PRINTING OFFICE 16—33141-2

331.3
Un 34w

THE LIBRARY OF THE
JUN 8 1943
UNIVERSITY OF ILLINOIS

Which Jobs for Young Workers?

No. 6—Advisory Standards for Welding Occupations

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
April 1943

WHICH JOBS FOR YOUNG WORKERS IN WELDING OCCUPATIONS?

THE art of welding is an essential tool of industry, and when efficiently applied has effected savings of both time and material—vital factors in the war effort. Satisfactory welding requires, in addition to proper engineering design, that welding operators be trained in the skillful and safe use of welding equipment and that they apply sound welding practices. As the use of welding has increased, so has the demand for trained welding operators.

Thousands of men and women have been trained in welding occupations during the past year. Between August 1, 1942, and February 1, 1943, approximately 270,000 men and women were trained in welding occupations by the public vocational schools in cooperation with the State boards for vocational education and the United States Office of Education under the program of vocational training for war-production workers. Of these men and women 100,000 were employed workers receiving upgrading training; 170,000 were new trainees. For the period July 1, 1942, through January 1943, the National Youth Administration trained 54,000 in welding occupations. Additional thousands were trained by private industry.

Welding used to be considered a man's job, but many of the newly trained welding operators are women and older boys and girls. Owing to the diminishing supply of adults readily available for training, in some places boys and girls of the 16- and 17-year age group are being trained and employed in the welding process. Although the employment of these young persons is usually not necessary or advisable, when they are employed, it is

important that they be safeguarded from undue hazard and protected from injury. This leaflet, the sixth of a series of advisory standards on the employment of young workers in war industries, is intended to serve as a guide for the placement of young people in jobs where they are least likely to be injured.

Like many other occupations, welding involves a certain degree of hazard, some welding applications being more dangerous than others. It is possible to protect the welding operator against some of the hazards of welding, but his safety depends to a large extent upon his knowledge of the welding process and its dangers, combined with experience, caution, and maturity of judgment. Young persons, characteristically lacking in these qualifications, are more likely to be injured or to cause injuries to others than are older and more experienced workers. Young and newly trained welding operators should not, therefore, begin their employment in kinds of work in which their safety or the safety of their fellow workers depends largely upon experience and judgment.

There are three principal types of welding—gas, arc, and resistance. Oxygen cutting—sometimes incorrectly referred to as "acetylene burning"—of metal by an oxygen-supported gas flame is a process closely related in many respects to gas welding and is included within the scope of these standards.

To carry out the general principle that all young welding operators, if they must be employed, should be employed only in the least hazardous applications of welding, the following policy should be adopted for their employment:

1. *General precautions to be observed:*

   (*a*) No inexperienced person should be employed as a welding operator unless he has satisfactorily completed a recognized course of training in welding occupations.

   (*b*) All young and newly trained welding operators should be instructed in welding safeguards, such as the proper shade of filter

lens for various kinds of welding; means of protection against burns from the arc rays, flame, and hot metal; care of welding equipment; the necessity for and ways of providing adequate ventilation, and so on.

(*c*) All young and newly trained welding operators should be placed under the supervision of an experienced welding operator and should work with him for at least 30 days after completing their welding training so that they may observe and become thoroughly familiar with safety rules and job procedures.

2. *Kinds of welding or cutting operations to which 16- and 17-year-old welding operators should be restricted:*

(*a*) Bench welding.
(*b*) Tack welding.
(*c*) Gas welding in the flat position.
(*d*) Arc welding in the flat position.
(*e*) Machine oxygen cutting.
(*f*) Manual oxygen cutting on work that is adequately supported.
(*g*) Resistance welding when no mechanical equipment is necessary to handle the materials to be welded.

3. *Kinds of welding or cutting operations unsuitable for 16- and 17-year-old welding operators:*

(*a*) Gas welding in other than the flat position. (Other than during training.)
(*b*) Arc welding in other than the flat position. (Other than during training.)
(*c*) Manual oxygen cutting at other than designated cutting stations.
(*d*) Arc welding with stainless-steel electrodes.
(*e*) Gas or arc welding or oxygen cutting on materials coated with lead, cadmium, or zinc (galvanized), or on lead-bearing metals.
(*f*) Gas or arc welding or oxygen cutting in tanks or confined spaces.
(*g*) Welding on preheated assemblies. (This shall not preclude welding on locally preheated parts.)
(*h*) Gas or arc welding or oxygen cutting when done from scaffolding.
(*i*) Resistance welding when mechanical equipment is necessary to handle the material to be welded.

16—34078-1

4. Observance of legal standards:

Where legal standards under State and Federal laws are applicable to employment of young workers in welding occupations, these should be fully observed.

The Children's Bureau will be glad to assist establishments that employ workers under 18 years of age as welding operators or contemplate such employment, in developing policies for suitable use of these young workers. Address inquiries to the Children's Bureau, United States Department of Labor, Washington, D. C.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

16—34078-1

List of Advisory Standards Under the General Title

WHICH JOBS FOR YOUNG WORKERS?

No. 1.—Employment of Young Workers in War Industries.

No. 2.—Advisory Standards for Shipbuilding.

No. 3.—Advisory Standards for Lead and Lead-Using Industries.

No. 4.—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.

No. 5.—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.

No. 6.—Advisory Standards for Welding Occupations.

No. 7.—Advisory Standards for the Operation of Metal-Working Machines.

United States
Government Printing Office
Washington, D. C.

331.3
Un34w
Cop. 1

THE LIBRARY OF THE
MAR 1 0
UNIVERSITY OF ILLINOIS

Which Jobs for Young Workers?

No. 6—Advisory Standards for Welding Occupations

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
January 1944

WHICH JOBS FOR YOUNG WORKERS IN WELDING OCCUPATIONS?

THE art of welding is an essential tool of industry, and when efficiently applied has effected savings of both time and material—vital factors in the war effort. Satisfactory welding requires, in addition to proper engineering design, that welding operators be trained in the skillful and safe use of welding equipment and that they apply sound welding practices. As the use of welding has increased, so has the demand for trained welding operators.

Thousands of men and women have been trained in welding occupations since the war began. Between August 1, 1942, and February 1, 1943, approximately 270,000 men and women were trained in welding occupations by the public vocational schools in cooperation with the State boards for vocational education and the United States Office of Education under the program of vocational training for war-production workers. Of these men and women 100,000 were employed workers receiving upgrading training; 170,000 were new trainees. For the period July 1, 1942, through January 1943, the National Youth Administration trained 54,000 in welding occupations. Additional thousands were trained by private industry.

Welding used to be considered a man's job, but many of the newly trained welding operators are women and older boys and girls. Owing to the diminishing supply of adults readily available for training, in some places boys and girls of the 16- and 17-year age group are being trained and employed in the welding process. Although the employment of these young persons is usually not necessary or advisable, when they are employed, it is

important that they be safeguarded from undue hazard and protected from injury. This leaflet, the sixth of a series of advisory standards on the employment of young workers in war industries, is intended to serve as a guide for the placement of young people in jobs where they are least likely to be injured.

Like many other occupations, welding involves a certain degree of hazard, some welding applications being more dangerous than others. It is possible to protect the welding operator against some of the hazards of welding, but his safety depends to a large extent upon his knowledge of the welding process and its dangers, combined with experience, caution, and maturity of judgment. Young persons, characteristically lacking in these qualifications, are more likely to be injured or to cause injuries to others than are older and more experienced workers. Young and newly trained welding operators should not, therefore, begin their employment in kinds of work in which their safety or the safety of their fellow workers depends largely upon experience and judgment.

There are three principal types of welding—gas, arc, and resistance. Oxygen cutting—sometimes incorrectly referred to as "acetylene burning"—of metal by an oxygen-supported gas flame is a process closely related in many respects to gas welding and is included within the scope of these standards.

To carry out the general principle that all young welding operators, if they must be employed, should be employed only in the least hazardous applications of welding, the following policy should be adopted for their employment:

1. *General precautions to be observed:*

   (*a*) No inexperienced person should be employed as a welding operator unless he has satisfactorily completed a recognized course of training in welding occupations.

   (*b*) All young and newly trained welding operators should be instructed in welding safeguards, such as the proper shade of filter

lens for various kinds of welding; means of protection against burns from the arc rays, flame, and hot metal; care of welding equipment; the necessity for and ways of providing adequate ventilation, and so on.

(*c*) All young and newly trained welding operators should work with and be supervised by an experienced welding operator for at least 30 days after completing their welding training so that they may become familiar with safety rules and job procedures.

2. *Kinds of welding or cutting operations permissible for 16- and 17-year-old welding operators:*

(*a*) Bench welding.

(*b*) Tack welding.

(*c*) Gas welding in the flat position (with or without positioners).

(*d*) Arc welding in the flat position (with or without positioners).

(*e*) Machine oxygen cutting.

(*f*) Manual oxygen cutting on work that is adequately supported.

(*g*) Resistance welding when no mechanical equipment is necessary to handle the materials to be welded.

3. *Kinds of welding or cutting operations unsuitable for 16- and 17-year-old welding operators:*

(*a*) Gas welding in other than the flat position. (Except during training.)

(*b*) Arc welding in other than the flat position. (Except during training.)

(*c*) Manual oxygen cutting at other than designated cutting stations.

(*d*) Arc welding with stainless-steel electrodes.

(*e*) Gas or arc welding or oxygen cutting on materials coated with lead, cadmium, or zinc (galvanized), or on lead-bearing metals.

(*f*) Gas or arc welding or oxygen cutting in tanks or confined spaces.

(*g*) Welding on preheated assemblies. (This shall not preclude welding on locally preheated parts or sections.)

(*h*) Gas or arc welding or oxygen cutting when done from scaffolding.

(*i*) Resistance welding when mechanical equipment is necessary to handle the material to be welded.

16—34078-2

4. Observance of legal standards:

Where legal standards under State and Federal laws are applicable to employment of young workers in welding occupations, these should be fully observed.

The Children's Bureau will be glad to assist establishments that employ workers under 18 years of age as welding operators or contemplate such employment, in developing policies for suitable use of these young workers. Address inquiries to the Children's Bureau, United States Department of Labor, Washington 25, D. C.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

13—34078-2

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)

No. 2—Advisory Standards for Shipbuilding.

No. 3—Advisory Standards for Lead and Lead-Using Industries.

No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.

No. 6—Advisory Standards for Welding Occupations.

No. 7—Advisory Standards for the Operation of Metal-Working Machines.

No. 8—Advisory Standards for the Aircraft Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.

No. 2—Motor-vehicle drivers and helpers.

No. 3—Occupations in coal mining.

No. 4—Occupations in logging and sawmilling.

No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.

No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

16—34078-2 U. S. GOVERNMENT PRINTING OFFICE

331.3
Un34w

Which Jobs for Young Workers?

THE LIBRARY OF THE
AUG 6 1943
UNIVERSITY OF ILLINOIS

No. 7—Advisory Standards for the Operation of Metal-Working Machines

The young worker of today is the skilled worker of tomorrow—Protect him from injury

THE LIBRARY OF THE
JUL 28 1943
UNIVERSITY OF ILLINOIS

U. S. Department of Labor
Children's Bureau
May 1943

WHICH JOBS FOR YOUNG WORKERS IN THE OPERATION OF METAL-WORKING MACHINES?

IN his radio talk on October 12, 1942, the President said, "We are learning to ration materials; and we must now learn to ration manpower. The major objectives of a sound manpower policy are: . . . to use older men, and handicapped people, and more women, *and even grown boys and girls, wherever possible and reasonable*, to replace men of military age and fitness; . . . " The phrase "wherever possible and reasonable" demands that plans for the employment of these boys and girls give due recognition to their educational needs and to the fact that their work must be fully safeguarded. To protect young workers from injury and to direct their employment so far as possible into places where their skills may be developed and fully utilized is an objective of vital importance to the Nation, both for efficient production and for preservation of future manpower.

In this war period large numbers of young workers are entering industry, many of whom will operate metal-working machines. Some of these machines can be operated safely by young workers—others are inherently hazardous or require such a degree of skill, caution, or muscular coordination that only older and more experienced workers should be permitted to operate them.

This leaflet, the seventh of a series issued by the Children's Bureau of the United States Department of Labor, is intended to assist employers in placing young workers engaged in operating metal-working machines. It lists the more common types of

metal-working machines that can be operated by 16- and 17-year-old boys and girls with relative safety and also those machines that are particularly hazardous for young and inexperienced workers to operate.

Injuries caused by machines are usually serious, particularly those occurring at the point of operation. All machines should be adequately guarded according to established standards. This guarding should cover all dangerous moving parts, including the point of operation. Guarding is important when adults operate machines—it is a *must* when young and inexperienced workers do so. But since young and inexperienced workers usually lack the characteristics of a safe worker, mechanical guarding alone cannot protect them from injury. They need supervision, instruction, and training and, in addition, they should be assigned to the safest jobs and the safest machines.

To protect these young workers from injury, the following general principles, applicable to all metal-working machines, should be adopted:

Workers 16 and 17 years old should not be employed or permitted to:

(*a*) Adjust, oil, or clean machinery in motion.
(*b*) Use a wiping rag or waste for removing chips when the machine is in motion.
(*c*) Operate machines while wearing loose clothing, neckties, long sleeves, etc. When girls operate machines, proper head protection should be provided.
(*d*) Set up or change tools or dies.
(*e*) Operate machines having unguarded gears or other dangerous moving parts.
(*f*) Operate machines requiring strenuous physical exertion, such as the constant lifting of heavy materials.

Additional recommendations covering the operation by young workers of different types of machines are given in the following pages.

Operating Machine Tools

Machine tools are the tools that make the machines of war. Machine tools are usually described as "power-driven, complete metal-working machines not portable by hand, having one or more tools or work-holding devices and used for progressively removing metal in the form of chips." They range in size from small bench machines to huge machines weighing 50 tons or more. Functionally, machine tools perform work by one of five methods of removing metal. These are: milling, planing, turning, boring, and grinding.

Some machine tools employ a number of tools performing one or more of these functions. In war production, the tendency is toward highly specialized machines that do the work quickly and accurately, the speed and accuracy being built into the machine instead of being dependent upon the operator.

Relatively Safe

Machine tools relatively safe for 16- and 17- year-old workers to operate:

(*a*) Small engine and turret lathes, threading machines, and tapping machines.

(*b*) Sensitive drill presses, including reaming, honing, and tapping operations.

(*c*) Small horizontal milling machines.

(*d*) Metal shapers.

(*e*) Keyseaters, filing machines, and broachers.

Not all machine tools are dangerous to operate, but some of them are. In some cases the hazard is inherent in the machine itself and is based on its method of operation; in other cases the degree of hazard is determined by the size of the machine, its speed and power, or the difficulty of its set-up.

Injuries due to machine tools may stem from several sources: The unguarded point of operation, the mechanical power-transmission apparatus that drives the machine, unsafe practices in operating the machine, or the handling of the raw material or finished product of the machine. Injuries are also caused by cleaning, oiling, or adjusting the machine while it is in motion. Some of the hazards may be overcome by guarding, some by the revision of processes or methods; others only by the skill, knowledge, and safe practices of the operator.

Machine tools relatively safe for 16- and 17-year-old minors to operate are shown in the listing on page 4; those too hazardous for such workers are shown in the listing on page 5. Assignments to work should be made in accordance with these listings.

Hazardous

Machine tools too hazardous for 16- and 17- year-old workers to operate:

(*a*) Grinding, abrasive, polishing, or buffing wheels.

(*b*) Screw machines, except the fully automatic, enclosed type.

(*c*) Large engine and turret lathes and milling machines.

(*d*) Radial drills, gang drills, and multiple-spindle drills.

(*e*) Horizontal or vertical boring mills.

(*f*) Metal planers.

Operating Cold-Metal Stamping, Shearing, and Forming Machines

Cold-metal stamping, shearing, and forming machines are defined as metal-working machines, not classified as machine tools, that change the shape of or cut cold metal by means of tools such as dies, rolls, or knives that are mounted on rams, plungers, or other moving machine parts. This class of machines includes presses and punches, brakes, hammers, rolls, and shears.

As a class these machines are the most hazardous of all metal-working machines, particularly with respect to the severity of the injuries they may cause. Their point of operation is their point of danger, difficult to guard and capable of causing serious injury. Many of these machines are also dangerous because of the belts, pulleys, and gears that drive them, and because of the difficulty involved in changing dies or tools.

Relatively Safe

Types of machines that 16- and 17-year-old workers may operate with relative safety:

(*a*) Power presses when provided with full automatic feed or semiautomatic feed, such as a dial, slide, or chute using automatic ejection, and with complete enclosure of the ram.

(*b*) Non-power-driven foot- or hand-operated presses when the stroke is limited to ⅜ of an inch or when otherwise effectively guarded.

(*c*) Non-power-driven foot- or hand-operated brakes.

(*d*) Non-power-driven foot- or hand-operated rolls.

(*e*) Non-power-driven foot- or hand-operated shears when provided with barrier guards.

Little skill is required to operate most machines of this class, and consequently little time is spent in training the operators. Boys and girls 16 and 17 years of age, without previous industrial experience, are, therefore, often assigned to operate them. When improperly guarded and when operated by workers who are untrained and unaccustomed to the monotony of the work, these machines can and do cause many serious accidents.

One way to protect inexperienced workers from injury is to place them on the safest machines until they have acquired sufficient skill and knowledge to operate more hazardous machines safely. Adjustment of personnel is advised to accomplish this purpose. When it is necessary for minors under 18 to operate cold-metal-working machines, their employment should be restricted to work on the machines listed on page 6 and they should not be placed at the machines listed on page 7.

Hazardous

Types of machines that should not be operated by 16- and 17-year-old workers:

(*a*) Power presses employing manual feed, regardless of method of guarding, and presses with full automatic or semi-automatic feed without full enclosure of the ram.

(*b*) Power-driven plate punches.

(*c*) Power-driven brakes, folders, flangers, corrugators, or crimpers.

(*d*) Power or drop hammers.

(*e*) Power-driven bending, straightening, corrugating, knurling, crimping, or beading rolls; also rolls for the cold rolling of metal.

(*f*) Power-driven guillotine and alligator shears, and power-driven rotary shears and slitters.

Operating Other Metal-Working Machines

Metal-working machines not in the two classes previously discussed include hot-metal forging, forming, and rolling machines; machines for cleaning metal products; and many other special machines used in the manufacturing of metal products.

Hot-metal forging, forming, and rolling machines include hammers, drop forges, forging presses, upsetting presses, stationary riveting machines, bulldozers, bending and straightening machines, rolling and blooming mills, and die-casting machines.

Machines or processes for cleaning metal or metal products include tumblers, sand blasting, and centrifugal extractors.

Special types of metal-working machines include metal saws, wire-drawing machines, tube-drawing machines, cable-stranding machines, and other wire-working machines.

Hot-metal forging and rolling machines were seldom operated by young and inexperienced workers in normal times; but now in wartime this may not always be true. Considerable skill is required to operate these machines, and work on them is usually too heavy for young boys. It is also too hazardous. In addition to the crushing or shearing danger at the point of operation, there is also the additional danger of burns. Some of the miscellaneous machines are likewise dangerous to operate, but since these hazards are determined by the particular machine, no enumeration of them can be made.

The machines mentioned here merely illustrate the kinds of machines in each class. There are in addition many other similar machines, or variations of those mentioned,

and the recommendations as to employment should be applied to other machines of like hazard. Likewise no attempt is made to list all the machines that can safely be operated by young workers.

Many of these miscellaneous metal-working machines may be operated safely by young and inexperienced persons, but others are inherently hazardous, or require such degrees of skill or experience that they should not be operated by young people. As a guide in the placement of young workers, it is suggested that:

Workers 16 and 17 years old should not be employed in operating the following machines:

(*a*) All hot-metal forging, forming, or rolling machines and die-casting machines.

(*b*) Riveting machines for hot riveting.

(*c*) Sand-blasting machines.

(*d*) Centrifugal extractors for removing oil or cutting compounds from metal chips.

(*e*) Circular saws and abrasive cutting disks used for cutting hot or cold metals.

(*f*) Wire-drawing machines, except fine wire commonly drawn through diamond dies.

(*g*) Cable-stranding machines.

Observance of Legal Standards

Some States have established minimum-age standards for the operation of certain metal-working machines that differ from the suggestions contained in these advisory standards. *Where State legal standards are higher, these should be fully observed.* If there is doubt as to State standards, requests for information should be made to the State Department of Labor or to other departments having jurisdiction. These advisory standards are intended only for emergency use during the war. They are not to be construed as recommending the lowering of any existing legal standard.

In some States the employer is required to pay extra compensation when a minor is injured while illegally employed. Illegal employment includes employment in violation of the established State minimum age for work in hazardous occupations. When minors are employed, it is important, therefore, that all legal requirements be complied with.

Where no State minimum-age standards exist, or where they are lower than those recommended in these advisory standards, observance of these advisory standards is urged.

With regard to specific metal-working machines not enumerated in these advisory standards, it is suggested that further information on the suitability of their operation by persons under 18 years of age be obtained from the Children's Bureau. Address inquiries to the Children's Bureau, U.S. Department of Labor, Washington, D. C.

Advisory Standards Issued to Date

No. 1—Employment of Young Workers in War Industries.
No. 2—Advisory Standards for Shipbuilding.
No. 3—Advisory Standards for Lead and Lead-Using Industries.
No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.
No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.
No. 6—Advisory Standards for Welding Occupations.
No. 7—Advisory Standards for the Operation of Metal-Working Machines.

Hazardous-Occupations Orders Issued Under the Child-Labor Provisions of the Fair Labor Standards Act of 1938

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and saw-milling.
No. 5—Operation of power-driven wood-working machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

THE LIBRARY OF THE
JUL 28 1943
UNIVERSITY OF ILLINOIS

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1943

331.3
Un34w
cop.1

Which Jobs for Young Workers?

THE LIBRARY OF THE
DEC 11 1943
UNIVERSITY OF ILLINOIS

No. 8—Advisory Standards for the Aircraft Industry

The young worker of today is the skilled worker of tomorrow—Protect him from injury

U. S. Department of Labor
Children's Bureau
November 1943

WHICH JOBS FOR YOUNG WORKERS IN THE AIRCRAFT INDUSTRY?

FEW industries have ever experienced such a tremendous expansion in such a short period of time as has the aircraft industry. Old plants have been enlarged, new plants built, production schedules stepped up, and new manufacturing methods evolved to meet the demand of global war. As production increased, so did employment; and as labor shortages developed, the industry sought new sources of labor supply.

Women have been trained to take the place of men, and they now constitute a large part of the working force. But even the supply of women available in some areas is not inexhaustible, and many of the aircraft companies are now hiring 16- and 17-year-old boys for production work. When plans for their employment had been carefully worked out before they were hired, they have been able to do the work assigned to them safely and satisfactorily.

The aircraft industry has many jobs that 16- and 17-year-old persons can fill, and many employers in the industry recognize their responsibility to see that young workers are employed safely and that they are not induced to cut their education short in order to go to work. Various means have been adopted to discourage boys and girls from quitting school to take full-time jobs. Several plants, coping with a tight labor market, have worked out part-time school and work pro-

grams designed to give the youngsters the opportunity to continue their education while working. Some of the best of these plans provide for bona fide apprenticeship training on the job and enable the young person to complete high school during his apprenticeship.

When 16- and 17-year-old workers are employed, either on a full-time or a part-time basis, special safety precautions are necessary to protect them from injury. Because they lack industrial experience and have not learned safe methods of working, they need careful and continuous supervision. And since some aircraft work is inherently hazardous, care must be used in assigning them to jobs. This leaflet, the eighth of a series issued by the Children's Bureau of the United States Department of Labor to assist employers in placing young workers in the least hazardous jobs, offers some suggestions on supervision and points out the types of work in which young workers should or should not be employed, depending upon the possibility of injury.

Supervision

Selection of supervisor.—Supervision is the responsibility of the foreman or leadman. The supervision of young workers should be given only to those who have the ability to supervise young people effectively. It is obvious that a foreman or leadman who likes young people and is used to being with them can do a better job of supervising them than someone who does not have these qualifications.

Instructions for the supervisor.—When young workers are assigned to a department, the foreman should be instructed regarding the

conditions under which they may work. In general, such instructions should be in writing. They should contain a statement of company policy on the employment of minors in regard to hours of work, shifts they are permitted to work on, school attendance, and the like. Information as to the requirements of Federal and State labor and school-attendance laws should be included, and also a designation of occupations or types of work that minors should not be permitted to perform.

Foremen or leadmen should receive instructions about the special problems of supervising young workers, pointing out that they need more constant supervision than adults and that special induction procedures may be necessary. This instruction in supervision could be given at foremen's meetings.

Identifying the young worker.—When 16- or 17-year-old workers are employed, employment or age certificates should be secured and kept on file in the plant employment office. Because this does not necessarily identify the young worker to his foreman, a special identification badge is desirable. This badge will identify the minor to the foreman or safety engineer if he is inadvertently assigned to an occupation contrary to law or company policy.

Suitable and Unsuitable Occupations

Work in the aircraft industry is not, in general, particularly hazardous, but some kinds of work are too dangerous for 16- and 17-year-old persons. The following suggestions concerning types of work should be adhered to in the placing of these young workers:

1. Sheet-metal departments.

Much of the work in the various sheet-metal departments consists of hand forming or subassembling of sheet metal or sheet-metal products; it is not particularly hazardous and is therefore suitable for young workers. However, the operation of power-driven shears, routers, brakes, punches, and presses is dangerous, and these machines should not be operated by persons under 18 years of age.

Young persons should not be employed in the drop-hammer department in any capacity.

2. Draw-bench operations.

The operation of machines used for forming angles or other sections from flat strips and for bending sections into various shapes is too dangerous for young workers. Related hand work such as laying-out, is, however, not considered too dangerous.

3. Machine shop, tool room, and tool cribs.

Work in the tool crib is satisfactory for inexperienced young workers except that some of the lifting may be too heavy for them. Some work in the machine shop and tool room is likewise satisfactory, but, because so many other jobs in aircraft manufacturing are suitable for minors, their employment in the machine shop and tool room is usually not necessary or desirable. When they are employed, their employment should be in accordance with the recommendations contained in "Which Jobs for Young Workers?—No. 7—Advisory Standards for the Opera-

tion of Metal-Working Machines." These recommendations specify:

Machine tools relatively safe for 16- and 17-year-old workers to operate:

(*a*) Small engine and turret lathes, threading machines, and tapping machines.
(*b*) Sensitive drill presses, including reaming, honing, and tapping operations.
(*c*) Small horizontal milling machines.
(*d*) Metal shapers.
(*e*) Keyseaters, filing machines, and broachers.

Machine tools too hazardous for 16- and 17-year-old workers to operate:

(*a*) Grinding, abrasive, polishing, or buffing wheels.
(*b*) Screw machines, except the fully automatic, enclosed type.
(*c*) Large engine and turret lathes and milling machines.
(*d*) Radial drills, gang drills, and multiple-spindle drills.
(*e*) Horizontal or vertical boring mills.
(*f*) Metal planers.

4. Welding.

The recommendations contained in the Children's Bureau advisory standard number 6 on welding occupations hold for welding in aircraft construction and maintenance insofar as they apply. Although most aircraft welding is not particularly hazardous, some plants prefer not to employ 16- and 17-year-old persons as welders because many other jobs seem to be more suitable. When they are employed, however, the recommendations from the Advisory Standards for Welding Occupations should be adhered to. They are:

Kinds of welding or cutting operations permissible for 16- and 17-year-old welding operators:

(*a*) Bench welding.
(*b*) Tack welding.

(*c*) Gas welding in the flat position [with or without positioners].
(*d*) Arc welding in the flat position [with or without positioners].
(*e*) Machine oxygen cutting.
(*f*) Manual oxygen cutting on work that is adequately supported.
(*g*) Resistance welding when no mechanical equipment is necessary to handle the materials to be welded.

Kinds of welding or cutting operations unsuitable for 16- and 17-year-old welding operators:

(*a*) Gas welding in other than the flat position. (Except during training.)
(*b*) Arc welding in other than the flat position. (Except during training.)
(*c*) Manual oxygen cutting at other than designated cutting stations.
(*d*) Arc welding with stainless-steel electrodes.
(*e*) Gas or arc welding or oxygen cutting on materials coated with lead, cadmium, or zinc (galvanized), or on lead-bearing metals.
(*f*) Gas or arc welding or oxygen cutting in tanks or confined spaces.
(*g*) Welding on preheated assemblies. (This shall not preclude welding on locally preheated parts or sections.)
(*h*) Gas or arc welding or oxygen cutting when done from scaffolding.
(*i*) Resistance welding when mechanical equipment is necessary to handle the material to be welded.

5. *Paint shop and dope room.*

Work in the paint shop, except the operation of the spray gun and the mixing of paints, is suitable for 16- and 17-year-old workers.

They should not, however, be permitted to work in the dope room in any capacity because of the danger of working about highly inflammable and toxic substances. Where the paint shop and dope room are combined, the combined shop should be considered on the same basis as a dope room.

6. Anodizing, heat treating, and degreasing.

Employment in these departments or in work of this type in other departments is considered too dangerous for young workers. Degreasing is frequently done in connection with other work and young workers should not be permitted to operate degreasing machines nor to clean metal by cold dipping.

7. Foundry and pattern shop.

Employment in the foundry is too hazardous, but there is no objection to employment in the pattern shop where plaster of paris moulds for the foundry are made.

8. Wood shops.

Hazardous-Occupations Order No. 5, issued by the Children's Bureau under the Fair Labor Standards Act of 1938, applies the minimum age of 18 for hazardous occupations to the operation of any power-driven woodworking machines and also off-bearing from circular saws or veneer clippers. Order No. 5 does not, however, apply to apprentices employed in operating woodworking machines in certain trades when employed under the conditions specified in the order. Some of these trades may be found in aircraft plants.

Employment in occupations that do not involve the operation of machines is not covered by the order, but it is preferable that 16- and 17-year-old persons not be employed in the woodworking shops in any capacity other than apprentices since many other jobs in less hazardous departments are available.

9. Wing, center section, tail, and fuselage assembly.

All work in connection with these assemblies is satisfactory. Boys, particularly, seem adept at hand work such as this, are capable of learning quickly and, when they have been employed on assembly with proper supervision, their work has been very satisfactory. Some riveting on large bombers is fairly heavy and it is good practice to restrict young persons to the lighter jobs.

10. Final assembly.

Final assembly likewise is suitable for young workers; boys particularly find it easy to do the necessary climbing in and over the plane. In the assembly of large planes some of the work, such as the installation of the landing gear or the engines, may be too heavy for minors under 18.

11. Flight ramps.

Young workers should not be employed on the flight ramps, because of the danger from whirling propellers when the engines are tuned up.

12. Receiving and packing departments.

When employed in the receiving departments minors should be restricted to hand work, such as opening boxes, storing light materials, and the like. They should not be permitted to operate cranes, carriers, hoists, elevators, or other mechanical equipment, and they should not be employed as hook-up men for such equipment.

Much of the work in the packing department of plants making airplane parts consists of packing small parts, which does not

involve heavy lifting or other strenuous work. Such work could be done by 16- and 17-year-old persons.

13. Plant engineering and maintenance.

Young workers should not be employed in plant engineering and maintenance because of the hazards in such work.

14. Other departments.

Work in the electrical, radio, and instrument-assembly departments, and also in the upholstery department, is not particularly hazardous and is suitable for young workers. Women and girls seem to be more adept at this kind of work than boys. Also work in tube bending and in the assembly of hydraulic landing gears and controls is suitable for 16- and 17-year-old persons. Inspection of small parts involving the use of simple gauges is likewise suitable.

State Laws and Regulations

When State laws or regulations establish minimum ages for any occupations higher than the ages suggested in this leaflet, the State standards should be observed, as well as State requirements for employment certificates, restrictions on hours of work and night work.

The Children's Bureau will be glad to assist aircraft plants employing workers under 18 years of age, or contemplating such employment, in developing policies for suitable use of these workers. Address inquiries to the Director, Industrial Division, Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)
No. 2—Advisory Standards for Shipbuilding.
No. 3—Advisory Standards for Lead and Lead–Using Industries.
No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.
No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.
No. 6—Advisory Standards for Welding Occupations.
No. 7—Advisory Standards for the Operation of Metal–Working Machines.
No. 8—Advisory Standards for the Aircraft Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

U. S. GOVERNMENT PRINTING OFFICE: 1943

331.3
Un34w
cop 1
THE LIBRARY OF THE
FEB 6 1945
UNIVERSITY OF ILLINOIS

Which Jobs for Young Workers?

No. 9—Advisory Standards for the Pulp and Paper Industries

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
October 1944

WHICH JOBS FOR YOUNG WORKERS IN THE PULP AND PAPER INDUSTRIES?

PAPER is one of the most important and essential products used in the prosecution of the war. Much of the unprecedented demand is for war purposes such as wadding for shells, for packing of materials for overseas shipment, and for use in keeping the all-important records of America's millions in the armed services. Recognition of the importance of paper has been given through awarding of the Army-Navy E to plants that do an outstanding job in making paper and paper products.

But paper cannot be produced without manpower, and manpower has become increasingly difficult to recruit. In an effort to maintain production, many plants, for the first time, have begun hiring on a full- or part-time basis some 16- and 17-year-old boys and girls for jobs in which previously only adults had been employed. These young and inexperienced workers create a problem that warrants careful attention by their employers—the problem of protecting them from injury.

This leaflet—the ninth of a series "Which Jobs for Young Workers?" issued by the Children's Bureau of the U. S. Department of Labor—is intended to assist employers by providing information on which jobs are suitable and which are too hazardous for these new workers. The first of this series of leaflets, "No. 1—Advisory Standards for the Safe Employment of Young Workers," suggests how minors may be protected from injury by adoption of a three-point program which provides for (1) employment in the least hazardous jobs, (2) a safe and healthful place to work,

16—42211-1

and (3) thorough training and supervision. This leaflet, "Advisory Standards for the Pulp and Paper Industries," gives information for compliance with the first point.

A safe and healthful place to work must be provided and maintained if young workers are to be employed safely. This requires well-designed buildings, adequate floor space, suitable lighting, and thorough ventilation. It involves good housekeeping such as safe floors, well-marked and maintained aisles, and disposal of scrap. Above all, it means properly guarded machinery and equipment.

Thorough instruction and close supervision, particularly on matters that affect his safety, should be given to the teen-age employee by the foreman. The plant may represent an entirely new environment to the boy or girl who is coming from school without any industrial experience. No inexperienced worker should be permitted to start a job until his supervisor is sure that he knows how to do the work safely and realizes that the safe way is the right way. Being naturally adventurous, a youngster is likely to neglect to use guarding and protective equipment; he may try to lift objects too heavy for him or to clean and oil machinery in motion; or he may indulge in horseplay. If he is not under close supervision he may become overfatigued, and the fatigue may lead to accidents or, if long-continued, may damage his health. He should be given special, individual instruction and assigned to work with an older and experienced worker.

Recommendations in this leaflet relate to the manufacture of pulp, paper, and paper board. The conversion of paper into paper products, plastics, or into such products as roll roofing is not covered, except for the paper-mill portion of the industry.

JOBS UNSUITABLE FOR MINORS

Some work in making pulp and paper is hazardous, much too hazardous for 16- and 17-year-old workers, and in such work minors should not be employed. The safe employment of young workers requires that they be kept away from work that involves exposure to certain specific hazards. Young workers in the 16- and 17-year age group should not, therefore, be employed in the following kinds of work or occupations which usually involve exposure to severe hazards:

Work in such locations as:

Inside enclosed spaces such as tanks, vats, pits, boilers, and cisterns.

On or around tanks, vats, or tubs unless the side or railing is 42 inches above the working level.

In excavations of greater depth than to the worker's shoulder.

In the machine shop and the millwright department.

About the log pond.

On pole or line work.

Work around such machines or equipment as:

Open gears, sprockets, chains, belts, pulleys, clutches, shafting, and fans.

Unguarded, mechanically operated knives.

Saws, splitters, and wood-preparing machinery.

Mechanism which controls steam, water, or air under excessive pressure.

Unguarded cutting and trimming edges.

Nips of any kind.

Work involving such processes as:

Repairs or maintenance of electrical apparatus.

Construction of and work on stagings.

Unloading coal (except hand shoveling).

Cleaning or oiling machinery while in motion.

Handling of poisonous gases and corrosive substances.

Work in connection with cooking processes for waste paper, chips, or rags.

16—42211-1

Operation of such machines or equipment as:

Elevators.

Stitching, cutting, or punching machines (unless point-of-operation hazard is minor).

Spray guns.

Abrasive wheels (except slow-speed grindstones).

Parchmentizing machines, excelsior shredders, waxing and coating machines.

Electrical starting equipment (except when controlled through a low-voltage relay or contactor).

Power-driven cranes, hoists, lifts, or electric trucks.

JOBS RELATIVELY SAFE FOR MINORS

Some jobs in pulp and paper mills are comparatively free from specific hazards and are relatively safe for 16- and 17-year-old workers. Since the hazards of jobs vary considerably from one mill to another, each job should be studied carefully in the light of local conditions. Minors should be employed only in places that do not expose them to danger and in jobs suited to their strength and physical development. The following are examples of jobs considered relatively safe for young workers in most mills:

Wood-storage yard—Hand handling of 4-foot pulpwood of small diameter and light weight; tiering and straightening pulpwood either in tiers or on a tiered car when not exposed to overhangs or slides or any overhead equipment such as cranes or buckets; work as clerk, water boy, scaler, sorter, checker; clean-up jobs.

Wood-room—Wood sorting, hand cleaning of wood, and general clean-up work.

Ground-wood mill—Hand handling of blocks, roll skinning, hand trucking, and piling pulp; grinding, if artificial stones are used; cleaning screens; general clean-up work.

Chemical pulpmill—Handling limestone,

hand trucking, roll skinning, piling pulp, screen washing, and general clean-up work.

Waste paper recovery department—Sorting, storing, weighing, and handling waste paper by hand; cleaning washers and screens and general clean-up.

Beater-room—Beater helper in feeding stock, broke, or waste paper into beater; stock handler; broke handler.

Machine-room—Such jobs as cleaning, broke handling, and roll plugging can be performed safely by minors providing they are kept away from the machine.

Finishing-room—Helper at rear of rotary cutter; handling paper; sorting, counting, and inspecting sheet paper; wrapping and tying bundles; packing and sealing cartons; wrapping or banding roll paper; sorting and piling sheet paper on skids; wrapping and banding skids; hand trucking paper if the loads conform to size and strength of worker; broke handler; marking rolls, bundles, or skids; checker; paper-drill operator; clerical work.

Storage and shipping division—Jobs such as hand trucking, loading bundles, cartons, and skids with hand trucks, and cleaning and lining cars are considered relatively safe.

Laboratory—The routine testing of pulp, paper, white water, and the like present no unusual hazards for young workers although they should not be unduly exposed in the collection of the samples.

OBSERVANCE OF LEGAL STANDARDS

When State laws or regulations establish minimum ages for any occupation higher than the ages suggested in this leaflet, the State standards should be observed; also State requirements for employment certificates and restrictions on hours of work and night work.

19—42211-1

ADVISORY STANDARDS ISSUED TO DATE

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)
No. 2—Advisory Standards for Shipbuilding.
No. 3—Advisory Standards for Lead and Lead-Using Industries.
No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.
No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.
No. 6—Advisory Standards for Welding Occupations.
No. 7—Advisory Standards for the Operation of Metal-Working Machines.
No. 8—Advisory Standards for the Aircraft Industry.
No. 9—Advisory Standards for the Pulp and Paper Industries.
No. 10—Advisory Standards for the Textile Industries.
No. 11—Advisory Standards for the Railroad Industry.

HAZARDOUS-OCCUPATIONS ORDERS

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications on this page are available upon request to the Children's Bureau.

The close relationship between safety and efficiency warrants the careful observance of these advisory standards at all times, except when a temporary emergency makes a short-time deviation necessary to uninterrupted war production.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

The Children's Bureau will be glad to assist plants employing workers under 18 years of age, or contemplating such employment, in developing policies for suitable use of these workers. Address inquiries to the Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

U. S. GOVERNMENT PRINTING OFFICE 16—42211-1

331.3
Un34w
Cop 1

Which Jobs for Young Workers?

THE LIBRARY OF THE
FEB 6 1945
UNIVERSITY OF ILLINOIS

No. 10—Advisory Standards for the Textile Industries

The young worker of today is the skilled worker of tomorrow—Protect him from injury

U. S. Department of Labor
Children's Bureau
December 1944

WHICH JOBS FOR YOUNG WORKERS IN THE TEXTILE INDUSTRIES?

CLOTHING the men and women in our armed forces in khaki and blue is, of course, a big job, but is not by far the entire picture of textiles at war. Thousands of textile products other than clothing occupy a front position in the Nation's war effort and are being used by our fighting men. Textile products are also being utilized extensively for wartime industrial uses, to say nothing of civilian needs.

As in many other industries, wartime scarcity of manpower has led to greatly increased employment of 16- and 17-year-old workers in textile plants. The textile industries have customarily employed many workers of these ages, but today a greater number of mills are employing them and in a greater variety of jobs. Consequently, protection of these young employees from accidental injury is a matter of increasing concern.

Work in the textile industries is not, in general, hazardous, but some is too dangerous for 16- and 17-year-old persons. The Children's Bureau of the United States Department of Labor is issuing these recommendations in an effort to protect young, inexperienced workers and to assist textile employers in assigning their 16- and 17-year-old employees to jobs in which they are least likely to be injured. Jobs considered comparatively safe are listed, as well as those considered unduly hazardous for young workers in the textile industries. This leaflet is the tenth in a series listed on page 8.

The first leaflet discusses the need for training and supervision of young workers and for providing safe and healthful surroundings for them.

Recommendations in this leaflet relate to mills which perform one or more of the processes involved in converting cotton or wool into yarns or fabrics, and rayon yarns into fabrics. Some products of these mills may be in finished form, such as blankets, hosiery, and the so-called square-sewn goods like bedsheets and towels. Suggestions in this leaflet do not cover the allied industries, known as the garment or needle trades, nor establishments which only convert fabrics into nonapparel articles such as tents and bags.

State Laws and Regulations

In States whose laws or regulations establish minimum ages for any occupation higher than the ages suggested in this leaflet, the State standard should be observed. Legal requirements for employment certificates and restrictions on hours of work and night work should also be observed.

Occupations Comparatively Safe and Occupations Too Hazardous

It is urged that the following recommendations, based on the hazards of the particular occupation, be followed in the placing of 16- and 17-year-old workers. Some textile-mill occupations, of course, require degrees of skill and experience possessed by very few young workers. Such occupations are, however, included in the following table in one or the other of the columns in order to give a more comprehensive coverage of textile-mill operations.

WHICH JOBS FOR 16- AND 17-YEAR-OLD WORKERS IN THE TEXTILE INDUSTRIES?

DEPARTMENT OR OPERATION	COMPARATIVELY SAFE	TOO HAZARDOUS
Receiving and stock rooms	Light work such as opening boxes and storing light materials; clerical occupations and the like	Handling bales, oil drums, buggies, barrels, and heavy cases; operation of elevators, baling equipment, or mechanical lifting devices such as those used for stacking
Opening	None	All work in opening room
Wool sorting, mixing, scouring, and carbonizing	Sorting and mixing operations	Operating or assisting in the operation of cleaning and baling equipment; work in connection with carbonizing and drying
Picking	None	All work in picker room
Carding	Bringing in and removing sliver and roving cans, and sweeping	All other work in carding room

WHICH JOBS FOR 16- AND 17-YEAR-OLD WORKERS IN THE TEXTILE INDUSTRIES?

DEPARTMENT OR OPERATION	COMPARATIVELY SAFE	TOO HAZARDOUS
Receiving and stock rooms	Light work such as opening boxes and storing light materials; clerical occupations and the like	Handling bales, oil drums, buggies, barrels, and heavy cases; operation of elevators, baling equipment, or mechanical lifting devices such as those used for stacking
Opening	None	All work in opening room
Wool sorting, mixing, scouring, and carbonizing	Sorting and mixing operations	Operating or assisting in the operation of cleaning and baling equipment; work in connection with carbonizing and drying
Picking	None	All work in picker room
Carding	Bringing in and removing sliver and roving cans, and sweeping	All other work in carding room
Drawing	All work	None
Roving	All work	None
Combing	Bringing in and removing laps and cans	Operation of sliver and ribbon lappers and combers
Spinning	Doffing in spinning-mule operations, and all work in other spinning operations	Operations in which spinning mules are used, other than doffing
Spooling, winding, twisting, warping, quilling, and beaming	All work other than loading and unloading warpers and beamers	Loading and unloading warpers and beamers
Slashing	None	Operating or assisting in the operation of slashers; also work in the preparation of the size
Drawing-in and tying-in	All work except loading and unloading	Loading and unloading
Weaving	Work as battery hands, bobbin boys, and weavers	Loom fixing, cleaning looms in motion, and warp changing
Knitting, sewing, and boarding	All work	None
Mending	All work other than that requiring heavy lifting	Work requiring heavy lifting
Shearing, brushing, cutting, rolling, and inspecting	All work except shearing and brushing and operations in which a guillotine cutter is used	Shearing and brushing and operations in which a guillotine cutter is used
Napping	None	All operations
Wet finishing	None	All operations
Printing	None	All operations
Folding	None	All operations
Cloth-baling	All work other than that requiring heavy lifting	Work requiring heavy lifting
Dyeing and finishing plants	Laboratory work in dye plant; inspecting and ticketing in finishing plant	All other work in or about dye plant and in subsequent finishing operations
Storage, and shipping	Work not requiring heavy lifting or strenuous physical exertion	Operation of fork lifts, electric trucks, cranes, hoists, elevators, or other mechanical lifting or moving devices
Plant engineering and maintenance, and power-plant operation	None	All work such as installing and repairing machinery and oiling or cleaning machinery in motion
Sweeping, scrubbing, and running	All work	None

THESE ADVISORY STANDARDS are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers. (Revision of No. 1—Employment of Young Workers in War Industries, October 1942.)

No. 2—Advisory Standards for Shipbuilding.

No. 3—Advisory Standards for Lead and Lead-Using Industries.

No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.

No. 6—Advisory Standards for Welding Occupations.

No. 7—Advisory Standards for the Operation of Metal-Working Machines.

No. 8—Advisory Standards for the Aircraft Industry.

No. 9—Advisory Standards for the Pulp and Paper Industries.

No. 10—Advisory Standards for the Textile Industries.

No. 11—Advisory Standards for the Railroad Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.

No. 2—Motor-vehicle drivers and helpers.

No. 3—Occupations in coal mining.

No. 4—Occupations in logging and sawmilling.

No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.

No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications on this page are available upon request to the Children's Bureau.

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON

331.3
Un34w
Cop 1

Which Jobs for Young Workers?

THE LIBRARY OF THE
MAR 7 1946
UNIVERSITY OF ILLINOIS

No. 11—Advisory Standards for the Railroad Industry

The young worker of today is the skilled worker of tomorrow—Protect him from injury

U. S. Department of Labor
Children's Bureau
December 1944

WHICH JOBS FOR YOUNG WORKERS IN THE RAILROAD INDUSTRY?

"I'VE BEEN working on the railroad"—the theme of an old folk song—is now often used as the answer when one teen-age boy asks another where he has been working. For several thousand 16- and 17-year-olds are indeed working on the railroad where traditionally only adults have been employed.

Railroads are one of the country's most essential industries and in wartime they occupy a position of utmost importance. Like many industries they have been hit by labor shortages and in an effort to maintain and increase their services they have turned, as a last resort, to the Nation's "boy power."

Certain types of railroad work can be performed with comparative safety by boys and girls of 16 and 17 years of age, but there are also many jobs where use of minors is not advisable. Some railroad work is too hazardous for these young workers, and many jobs give them too much responsibility for the safety of other persons. Furthermore, State child-labor laws prohibit the employment of minors of specified ages in certain hazardous railroad occupations.

This leaflet—eleventh in a series by the Children's Bureau of the U. S. Department of Labor—is intended to assist railroads in placing young workers in jobs where they are least likely to get hurt. Jobs usually considered relatively safe are listed, as well as State laws on the minimum age for employment in some railroad occupations. Suggestions are also given on work camps for young employees. This leaflet gives information on *employment in the least hazardous*

jobs—the first of a three-point program advocated by the Children's Bureau for the protection of young workers. The other two points are *a safe and healthful place to work* and *thorough training and close supervision.* The program is set forth in the first of this series of leaflets, NO. I—ADVISORY STANDARDS FOR THE SAFE EMPLOYMENT OF YOUNG WORKERS.

Jobs Relatively Safe for Young Persons

The following list of railroad occupations gives those generally considered suitable for youths of 16 and 17. These occupations are selected from the work classification of the Interstate Commerce Commission. This list does not enumerate all jobs suitable for young workers, but indicates the types of jobs wherein they can be employed with relative safety. Some work in these classifications, for example, that requiring heavy lifting, may be unsuitable for minors. Because kinds of work vary in jobs having the same titles, and because physical capacities of individuals differ, care must be taken that minors are assigned to work for which they are physically qualified.

Professional, Clerical, and General

Clerks (B and C)
Janitors and cleaners
Mechanical-device operators (office)
Messengers and office boys
Stenographers and typists
Telephone-switchboard operators and office assistants
Stablemen
Ticket collectors (ferry)

Maintenance of Ways and Structures

Carpenter helpers (except on bridges and scaffolds)
Extra gang men
Maintenance-of-way laborers (except track and roadway) and gardeners and farmers
Painters and painter helpers (except on bridges and scaffolds)
Section men (except in railroad yards or where traffic is heavy)

Maintenance of Equipment and Stores

Apprentices—shop crafts
Coach cleaners
Oilers and coal passers

Transportation (Except Train, Engine, and Yard)

Baggage, parcel-room, and station attendants
Waiters, camp cooks, and kitchen helpers
Callers, loaders, scalers, sealers, and perishable-freight inspectors
Telegraphers and telephoners (not involving transmission, receipt, or delivery of orders affecting operation of trains)
Train attendants
Truckers (hand)—stations, warehouses, and platforms

Other types of work, particularly those concerned with the operation of trains, such as firemen, trainmen, and yardmen, are generally considered unsuitable for 16- and 17-year-olds because of the possibility of injury to themselves as well as the responsibility involved for the safety of others.

Where 16- and 17-year-old girls are employed, they should be limited to such employment as office work, stock clerks, and messenger service, and should work under conditions that will not expose them to hazards involving their health or safety.

Work Camps

Railroad employees, particularly those engaged in track construction or maintenance, sometimes live in work camps. It is desirable that younger workers live in small-group units, separate from the living quarters of older employees. Camp sanitation should conform with State regulations. A supervisor and camp staff may be employed to be responsible for such routine work as camp clean-up, dining room, and laundry. Counselors should be provided to supervise camp and leisure-time activities which will contribute to the health and well-being of the young employees. It is desirable that an

informal recreation program be developed as far as possible by young workers themselves.

Employment Prohibited Under State Laws

In any plans for employing minors on railroad work, recognition should be given to State child-labor laws. Because of the danger of railroad work, a number of States have set a minimum age for work on railroads that is higher, usually by 2 years, than the minimum age in the State for general employment. Listed below are the 21 States in which a minimum age of 16 or 18 is established for specific railroad occupations. Other minimum-age provisions in State laws or regulations may also affect the work of minors for railroads, such as the operation of specified machines or the handling of explosives. For information regarding these provisions or other standards affecting the employment of minors under 18, write the State Department of Labor or other department administering the State child-labor law.

Minimum Age for Employment

Alabama—16, upon any railroad, whether steam, electric, or hydraulic.

Arizona—18, switch tending, gate tending, track repairing; brakeman, engineer, fireman, motorman, or conductor upon any railroad.

Arkansas—16, upon any railroad, whether steam, electric, or hydraulic.

California—16, upon any railroad, whether steam, electric, or hydraulic.

War Emergency Exemption: Under the 1943 Minors Emergency War Employment Act, the Governor is authorized to issue war-production permits allowing minors to work at such hours, at such types of work, and under such conditions as may be helpful to the war effort without unreasonably increasing the risk of impairing the health, education, or safety of the minors.

Colorado —18, railroad telegraph operator.

Delaware—16, upon any railroad, steam, electric, or otherwise.

18, switch tending, gate tending, track repairing, railroad telegraph operator; brakeman, fireman, engineer, motorman, or conductor upon any railroad.

Georgia—16, upon any railroad, whether steam, electric, or hydraulic.

18, railroad telegraph operator to receive and transmit dispatches governing the movement of trains.

Kentucky—16, upon any railroad, whether steam, electric, or hydraulic.

Maryland—16, upon any railroad, whether steam, electric, or hydraulic.

18, switch tending, gate tending, track repairing; brakeman, fireman, engineer, motorman, or conductor upon any railroad; railroad telegraph operator.

Massachusetts—18, switch tending, gate tending, track repairing; brakeman, fireman, engineer, motorman, or conductor upon any railroad or railway.

War Emergency Exemption: Under a 1943 act, the Commissioner of Labor and Industries is authorized to suspend the operation of any provision of the child-labor law when he deems such action necessary to supply any deficiency in manpower due to the war.

Michigan—18, in and around railroads, street railways, interurban and railroad and bus terminals.

19, railroad telegraph operators.

Missouri—16, operating any railway or railroad engine or car, or street or interurban car; work in connection with any construction or repair work on or for any railroad or railway, street or interurban line, or tracks.

Montana—16, in, on, or about any steam, electric, hydraulic, or compressed-air railroad.

Nevada—16, at switch tending, gate tending, track repairing, as brakeman, fireman, engineer, motorman, conductor, upon any railroad.

New York—21, *for girls*, conductor or guard on any street, surface, electric, subway, or elevated railroad.

Ohio—16, upon any railroad, whether steam, electric, or hydraulic.

18, switch tending, gate tending, track repairing, brakeman, fireman, engineer, motorman, or

conductor upon any railroad; railroad telegraph operator.

Oregon—21, flagman on or in connection with the operation of any passenger train.

Pennsylvania—16, upon any railroad, steam, electric, or otherwise.

18, switch tending, gate tending, track repairing; brakeman, fireman, engineer, motorman, or conductor, upon a railroad or railway.

18, section hand on a railroad, railway, or highway, or callboy for a railroad company, *except* 16 on permit from the Industrial Board.

Females, all work prohibited on tracks or "at trucking" for any railroad, or as messenger for any railroad in the calling of train crews, *except* as Industrial Board grants special permission.

Rhode Island—16, upon any railroad, whether steam or electric.

Vermont—16, operating railroad machinery or apparatus including switches.

Wisconsin—18, brakeman, fireman, engineer, motorman, conductor, telegraph operator, work in switch tending, gate tending, or track repairing, on railroads, street railways, and interurban railroads.

Exception: During the war emergency, track repairing is permitted for boys 16 years of age employed by certain railway companies. Work is also permitted by such boys as car checkers and messengers in or about docks for these companies.

The Children's Bureau will be glad to assist railroads employing workers under 18 years of age, or contemplating such employment, in developing policies for suitable use of these workers. Address inquiries to the Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers.

No. 2—For Shipbuilding.

No. 3—For Lead and Lead-Using Industries.

No. 4—For Employment Involving Exposure to Carbon Disulfide.

No. 5—For Employment Involving Exposure to Chlorinated Solvents.

No. 6—For Welding Occupations.

No. 7—For the Operation of Metal-Working Machines.

No. 8—For the Aircraft Industry.

No. 9—For the Pulp and Paper Industries.

No. 10—For the Textile Industries.

No. 11—For the Railroad Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.

No. 2—Motor-vehicle drivers and helpers.

No. 3—Occupations in coal mining.

No. 4—Occupations in logging and sawmilling.

No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.

No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

U. S. GOVERNMENT PRINTING OFFICE: 1944

331.3
Un34w
Cop 1

Which Jobs for Young Workers?

No. 12—Advisory Standards for Foundries

APR 4 1945
UNIVERSITY OF ILLINOIS

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

U. S. Department of Labor
Children's Bureau
March 1945

WHICH JOBS FOR YOUNG WORKERS IN FOUNDRIES?

CASTING of metals is one of the oldest of the mechanical arts. Bronze columns, used in the construction of Solomon's Temple, were cast by Phoenician workmen brought to Jerusalem by King Solomon. Phoenician craftsmen were the master craftsmen of their day, "skillful to work in gold and in silver, in brass, in iron, in stone, and in timber."

Today, metal castings are helping to win the war. Castings, along with forgings, are used in products which represent more than 50 percent of the country's entire war output. But like many other industries, foundries are having difficulty in obtaining an adequate supply of labor and, as a result, many foundries are for the first time hiring boys of 16 and 17. And these youngsters, lacking the experience, judgment, and physical development of adults, are creating a real safety problem.

Some foundry work is inherently dangerous, other foundry work is dangerous to young workers. This leaflet points out the jobs that are too hazardous for young people 16 and 17 years of age and the jobs usually considered relatively safe. It furnishes facts for application of the principle of *employment in the least hazardous jobs,* the first part of a three-point program for safety in the employment of young workers. The other parts of such a program—*a safe and healthful place to work* and *thorough training and close supervision*—are discussed in the first of this series of leaflets, ADVISORY STANDARDS FOR THE SAFE EMPLOYMENT OF YOUNG WORKERS, issued by the Children's Bureau of the United States Department of Labor.

Foundry hazards, including health hazards caused by dust and fumes, can be controlled or eliminated to a large extent by proper engineering methods and by safe practices. Control of hazards involves the elimination of dust and fumes, guarding of machinery, good housekeeping, and the use of personal safety equipment. Unless hazards are effectively controlled, minors of 16 and 17 years of age should not be employed for any kind of work in foundries. Even when adequate controls are in effect, minors should be employed only in the least hazardous jobs. The suggestions in the chart on the next page illustrate these least hazardous jobs. And, since some of the work performed in jobs considered relatively safe may at times involve heavy lifting or other heavy work, extreme care should be taken to see that young people are not permitted to work at jobs too arduous for them.

There are two types of foundries as distinguished by the production methods used—production foundries and job foundries. By product, foundries fall into four classes—gray iron, malleable iron, steel, and nonferrous metal. Recommendations in this advisory standard cover both methods of production and all classes of products. The recommendations do not apply to the casting of magnesium incident to its manufacture nor to die-casting, which are considered as separate industries.

State Laws and Regulations

In States whose laws or regulations establish minimum ages for any foundry occupation higher than the ages suggested in this leaflet, the State standard should be observed. Legal requirements for employment certificates and restrictions on hours of work and night work should also be observed.

JOBS TOO HAZARDOUS AND JOBS RELATIVELY SAFE FOR 16- AND 17-YEAR-OLD WORKERS IN FOUNDRIES

Department or operation	Too hazardous or otherwise unsuitable	Relatively safe and generally suitable
Sand preparation	All work in connection with machine milling, mulling, or cutting.	Hand mixing and conditioning, sand testing, sand drying.
Molding	All work in connection with the operation of all kinds of molding machines, such as bumper, jolting, roll-over, squeeze, and stripping-plate machines; also sand slingers.	Bench and floor molding on small work; setting light cores; straightening gaggers; distributing boards, jackets, and flasks to molders.
	Floor and pit molding on large work.	
Coremaking	Floor coremaking on heavy cores; tending	All work in connection with light bench and

JOBS TOO HAZARDOUS AND JOBS RELATIVELY SAFE FOR 16- AND 17-YEAR-OLD WORKERS IN FOUNDRIES

Department or operation	Too hazardous or otherwise unsuitable	Relatively safe and generally suitable
Sand preparation	All work in connection with machine milling, mulling, or cutting.	Hand mixing and conditioning, sand testing, sand drying.
Molding	All work in connection with the operation of all kinds of molding machines, such as bumper, jolting, roll-over, squeeze, and stripping-plate machines; also sand slingers. Floor and pit molding on large work.	Bench and floor molding on small work; setting light cores; straightening gaggers; distributing boards, jackets, and flasks to molders.
Coremaking	Floor coremaking on heavy cores; tending core ovens.	All work in connection with light bench and machine coremaking such as core filing, assembling, pasting, blackening, gauging, cleaning, and shellacking; wire straightening; work in connection with core storage.
Melting	All work in connection with charging, repairing, tending, or tapping of the furnace or cupola; lining cupola.	None.
Pouring	All work in connection with the pouring of hot metal such as work as ladleman, pitman, or hot-metal crane operator.	None.
Shaking out, cleaning, and heat treating	Work in connection with shaking out, chipping, sprue cutting, grinding, acetylene burning, shot or sand blasting, tumbling, straightening, annealing, pickling, and X-ray testing; handling or trucking heavy castings with power equipment.	Painting castings (except spray painting); sorting and weighing light castings; hand trucking of light castings; sorting rods.
Inspection and shipping	Operating cranes, hoists, or other power-driven material-handling equipment.	Inspecting, counting, checking, and packing light castings.
Patternmaking	Operation of all power-driven woodworking machines (Hazardous Occupations Order No. 5, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, applies a minimum age of 18 years for operating woodworking machines).	All work in connection with wood patternmaking, such as bench and hand patternmaking, cleaning, sanding, lettering, shellacking, and painting patterns, *except* the operation of woodworking machines; work in the pattern storage room. In metal patternmaking, the operation of metalworking machines should be in accordance with Advisory Standard No. 7 on the Operation of Metalworking Machines. Work in making plaster-of-paris patterns is likewise relatively safe.
Miscellaneous	Work as bricklayer; crane, hoist, or conveyor operator; chainman; elevator operator; power truck operator; millwright; electrician; repairman.	Work as flask carpenter or repairman when done outside the foundry proper (except operating woodworking machines); stock- and store-room attendant; toolroom attendant; clerk; timekeeper; messenger; laboratory assistant, except taking samples of hot metal.

THESE ADVISORY STANDARDS are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act of 1938, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards.

16—43181-1

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers.

No. 2—Advisory Standards for Shipbuilding.

No. 3—Advisory Standards for Lead and Lead-Using Industries.

No. 4—Advisory Standards for Employment Involving Exposure to Carbon Disulfide.

No. 5—Advisory Standards for Employment Involving Exposure to Chlorinated Solvents.

No. 6—Advisory Standards for Welding Occupations.

No. 7—Advisory Standards for the Operation of Metalworking Machines.

No. 8—Advisory Standards for the Aircraft Industry.

No. 9—Advisory Standards for the Pulp and Paper Industries.

No. 10—Advisory Standards for the Textile Industries.

No. 11—Advisory Standards for the Railroad Industry.

No. 12—Advisory Standards for Foundries.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, raise the minimum age of employment to 18 years in the occupations covered.

No. 1—Occupations in explosives plants.

No. 2—Motor-vehicle drivers and helpers.

No. 3—Occupations in coal mining.

No. 4—Occupations in logging and sawmilling.

No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.

No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

U. S. GOVERNMENT PRINTING OFFICE 16—43181-1

331.3
Ln34w
cop.1

Which Jobs for Young Workers?

No. 13—Advisory Standards for the Brick and Tile Industry

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

THE LIBRARY OF THE
8 1945
UNIVERSITY OF ILLINOIS

U. S. Department of Labor
Children's Bureau
May 1945

WHICH JOBS FOR YOUNG WORKERS IN THE BRICK AND TILE INDUSTRY?

THE MAKING of clay products, particularly bricks, for building purposes is one of the oldest industries known. Sun-dried bricks, made by the Babylonians and Egyptians over 4,000 years ago, still exist today. In America the adobe bricks of ancient Mexico and Yucatán predated the discovery of the New World.

Today brick and tile, like many other peacetime products, have also gone to war. Camps, naval bases, airfields, war plants, and wartime housing are using the products of brick and tile plants extensively. Other government buildings, such as veterans' hospitals and storage facilities, require clay products. Farmers are using drain and other tiles to increase and improve America's wartime food production. Clay and silica refractory products are being used extensively in our wartime metallurgical industries because of their strength and rigidity at the required high temperatures.

As in many industries, brick and tile plants are finding it difficult to secure a sufficient number of workers to maintain full production. Consequently many plants are for the first time employing 16- and 17-year-old workers. The employment of these inexperienced workers in the brick and tile industry represents a particularly serious accident problem, for the industry has an industrial-injury frequency rate which is more than twice the average for all manufacturing industries. The accident hazard to young workers can be lessened, however, by the application of a few basic safety principles, one of the most

important being that of employing minors only in the least hazardous occupations.

This leaflet, thirteenth in a series on WHICH JOBS FOR YOUNG WORKERS, is published as an aid to employers in placing their 16- and 17-year-old workers in safer occupations. The first leaflet in the series presents the need for and suggestions on training and supervision of young workers and on providing safe and healthful surroundings for them, in addition to placement in the least hazardous jobs.

Suggestions in this leaflet relate to plants engaged in manufacturing structural clay products, clay refractory products, products such as sewer pipe, drain tile, and promenade tile, and silica refractory products such as silica brick. The manufacture of tiles, such as mosaic, glazed, or enameled tile, and of sand-lime brick and glass brick, which involve different types of manufacturing processes, is excluded from consideration.

In small plants where it is necessary for employees to work on many or all processes, it is recommended that young workers not be employed at all because of the practical difficulty of limiting them to the specified types of work listed as comparatively safe in the chart on the next page. *In plants manufacturing silica products, it is further recommended that no workers under 18 years of age be employed in any capacity because of the presence of silica dust and the danger of silicosis.* The suggestions in the chart should be followed in the placing of young workers in the clay brick and tile industry to protect them from injury while at work.

WHICH JOBS FOR 16- AN

DEPARTMENT OR OPERATION	COM
Winning (stripping, mining, and dredging)	
Machine house or annex	(*a*) Hackers on green belt when the green produ exertion. (*b*) Hand-finishing tile ope (*c*) Hand-molding operatio work is not done on the (*d*) Pushing cars by hand t (*e*) In clay sewer-pipe and subsequent hand-finish
Drier or drying floor	Pushing cars by hand to kiln On drying floor of sewer-pi gathering pallets.
Tossing and setting	Tossing and hand-setting i heavy materials are being
Burning	
Drawing and loading	All hand work in drawing, dling of heavy materials pouring joints; general cl
Plant maintenance and power-plant operations	
Miscellaneous	Nailing racks and repairing

WHICH JOBS FOR 16- AND 17-YEAR-OLD WORKERS IN THE CLAY BRICK AND TILE INDUSTRY

DEPARTMENT OR OPERATION	COMPARATIVELY SAFE	TOO HAZARDOUS
Winning (stripping, mining, and dredging)	None.	All operations.
Machine house or annex	(*a*) Hackers on green belt, except when harmful sprays are being used or when the green product requires heavy lifting or strenuous physical exertion. (*b*) Hand-finishing tile operations as ordinarily done in the fitting room. (*c*) Hand-molding operations when small pieces are being made and when work is not done on the hot floor. (*d*) Pushing cars by hand to, but not into, driers. (*e*) In clay sewer-pipe and hot-top manufacturing: placing pallets at press, subsequent hand-finishing operations, and trucking to drying floor.	All other machine-house or annex occupations, such as work in connection with hoisting and dumping operations; operating and feeding of crushers, dry-pans, screens, granulators, conical rolls, smooth rolls, pugmills, extrusion machines, molding machines, cutting machines, and presses; work in clay bins.
Drier or drying floor	Pushing cars by hand to kilns. On drying floor of sewer-pipe plants: finishing operations, cutting rings, and gathering pallets.	All other work, such as work in the drier itself, building or tending fires, and as operators or helpers on motor-driven transfers or tugs; lifting heavy materials.
Tossing and setting	Tossing and hand-setting in permanent and temporary kilns, except when heavy materials are being set.	Setting operations when mechanical setters or hoists are used, or when heavy materials, such as large sewer pipe, are being set; building temporary kilns.
Burning	None.	All operations.
Drawing and loading	All hand work in drawing, stacking, and loading operations except the handling of heavy materials; packing products in cartons; wiring hot-tops; pouring joints; general clean-up.	All work in drawing, stacking, and loading where setters, hoists, or other mechanical equipment are used. (Hazardous-Occupations Order No. 2 applies an 18-year minimum age to the occupations of motor-vehicle driver and helper.)
Plant maintenance and power-plant operations	None.	All work.
Miscellaneous	Nailing racks and repairing kiln floors.	Use of abrasive wheels in finishing operations; operation of elevators, cranes, hoists, and other power-driven material-handling equipment.

State Laws and Regulations

In States whose laws or regulations establish minimum ages for any occupation higher than the ages suggested in this leaflet, the State standard should be observed. Legal requirements for employment certificates and restrictions on hours of work and night work should also be observed.

Advisory Standards

The advisory standards presented in this leaflet series are an emergency measure to protect young workers during the war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards. Hazardous-occupations orders issued to date are listed on the following page.

16—44230-1

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers.
No. 2—For Shipbuilding.
No. 3—For Lead and Lead-Using Industries.
No. 4—For Employment Involving Exposure to Carbon Disulfide.
No. 5—For Employment Involving Exposure to Chlorinated Solvents.
No. 6—For Welding Occupations.
No. 7—For the Operation of Metalworking Machines.
No. 8—For the Aircraft Industry.
No. 9—For the Pulp and Paper Industries.
No. 10—For the Textile Industries.
No. 11—For the Railroad Industry.
No. 12—For Foundries.
No. 13—For the Brick and Tile Industry.
No. 14—For the Converted Paper-Products Industries.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, apply an 18-year minimum age to employment in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

16—44230-1 GPO

331.3
Un34w
cop.1

Which Jobs for Young Workers?

AUG 6 - 1945
AUG 14 1945
UNIVERSITY OF ILLINOIS

No. 14—Advisory Standards for the Converted Paper-Products Industries

The young worker of today is the skilled worker of tomorrow—
Protect him from injury

THE LIBRARY OF THE
AUG 7 1945
UNIVERSITY OF ILLINOIS

U. S. Department of Labor
Children's Bureau
June 1945

WHICH JOBS FOR YOUNG WORKERS IN THE CONVERTED PAPER-PRODUCTS INDUSTRIES?

THIS LEAFLET—the 14th in the series of WHICH JOBS FOR YOUNG WORKERS?—offers suggestions on jobs considered relatively safe, and also those that are too hazardous, for the employment of 16- and 17-year-old workers in industries converting paper into paper products. Similar suggestions for the pulp and paper industries are contained in leaflet 9 of the series.

Some forty separate industries manufacturing hundreds of paper products are included in the converted paper-products industries. Obviously it is impossible to consider every occupation in all of these industries in a leaflet of this size. But many of these industries use identical or similar machines, much of the work is similar, and, in many cases, the hazards are the same. The recommendations regarding the suitability or unsuitability of certain jobs for minors are therefore applicable, in part at least, to all the converted paper-products industries.

The major converted paper products are paperboard containers and boxes, such as folding, set-up, corrugated, and fiber boxes, and fiber cans, tubes, and similar products; paper bags, such as grocery, heavy-duty, and merchandise bags; envelopes; coated and glazed paper; wallpaper; miscellaneous products, such as die-cut paper and paperboard, tablets and stationery, pressed and molded pulp products, cups and dishes, tags, and crepe and tissue products.

Minors of 16 and 17 years of age can be employed safely in the converted paper-products industries, provided that certain

fundamental safety precautions are complied with. Young workers must be properly trained and supervised, they must be given a safe place to work, and above all, they must be employed only in the least hazardous jobs. Many jobs, particularly those involved in the packing and shipping of the finished product, are light work and are comparatively safe. Other jobs, especially those involving the operation of certain machines, offer considerable possibilities for serious injuries. For the benefit of those who have found it necessary to employ 16- and 17-year-old boys and girls during these times of labor shortages, the following recommendations are made for placing these youngsters in jobs where they are least likely to get hurt.

Jobs Unsuitable for Minors

The following occupations are considered too hazardous or otherwise unsuitable for 16- and 17-year-old workers.

Miscellaneous occupations:

(1) Operation of power-driven elevators, cranes, hoists, fork lifts, and other elevating and stacking devices, or other power-driven equipment used for handling raw materials or finished products.

(2) Handling heavy paper rolls or heavy packages of paper or paperboard in the storage room.

(3) Work as millwright or maintenance man or in the power plant.

(4) Work in monotype casting when exposure to lead fumes is involved.

(5) Setting up (other than minor setting up as a part of the operation), cleaning, or oiling of machines in motion.

(6) Work in the stainer and clay-making departments (wallpaper).

(7) Color spraying with inks mixed with inflammable materials (paper and envelopes).

(8) Making glue (envelopes).

(9) Tending the conveyor back of Brackett cutting knife in the second-way cutting operation.

Operating, feeding, or tending the following power-driven machines:

(1) Book compressors.

(2) Calender rolls and platers.

(3) Case-making machines.

(4) Combination printers, scorers, and slotters (corrugated boxes).

(5) Corner cutters.

(6) Corner stayers when not equipped with safety heads.

(7) Corrugators and single or double facer machines.

(8) Creping machines.

(9) Die-cutting and creasing presses, platen and cylinder.

(10) Envelope machines, plunger type.

(11) Excelsior shredders.

(12) Guillotine cutters, including taking material away from such machines.

(13) Laminating or combining machines.

(14) Merchandise-marking and shipping-tag machines, except machines making small tags only.

(15) Paper choppers.

(16) Parchmentizing, waxing, and coating machines.

(17) Partition saws, either band or circular.

(18) Printing presses, manually fed cylinder and platen.

(19) Punch presses, including die-cutting, embossing, slotting, and creasing presses.

(20) Quadruple stayers (set-up boxes).

(21) Rewinders on heavy work, or rewinders performing a splitting or sawing operation offering possibility of contact with cutting edges.

(22) Roll slitters, slotters, creasers, and scorers, except small machines for light work only.

(23) Ruling machines, except pen-ruling machines.

(24) Scrap balers.

(25) Sheeters.

(26) Tube winders.

(27) Wire stitchers and wire or tape stayers, except semiautomatic machines.

(28) Wrapping machines, automatic (set-up boxes).

Jobs Relatively Safe for Minors

The following occupations are considered relatively safe and generally suitable for 16- and 17-year-old workers.

Miscellaneous occupations:

(1) Work in connection with packing, boxing, and shipping of finished products, except the operation of power-driven material-handling equipment.

(2) Hand folding, stripping, repiling, inspecting, banding, assembling, bundling, and wrapping; also work as stockmen.

(3) Hand trucking of light semifinished and finished products.

(4) General labor and clean-up work, except cleaning of machines or cleaning which involves the use of inflammable or toxic solvents.

(5) Work in connection with the silk-screen process.

(6) Compositors and lock-up helpers in box printing.

(7) Helper in ink and plate department (folding boxes).

(8) Die mounting.

Operating, feeding, or tending the following power-driven machines:

(1) Box stripping machines (set-up boxes).

(2) Bundling machines.

(3) Clasp machines (envelopes).

(4) Converting machines of special types for making paper specialties such as interfolders and machines for making and packaging handkerchiefs or small rolls of wax paper, that are automatic in operation and require but minor setting-up or adjusting by the operator.

(5) Envelope machines, rotary type.

(6) Folding machines.

(7) Folding and gluing machines, automatic (folding boxes).

(8) Gluing machines.

(9) Hole punching, drilling, and rotary perforating machines (tablets and stationery).

(10) Jogging machines.

(11) Merchandise-marking and shipping-tag machines, small tags only.

(12) Partition slotters, automatically fed (set-up boxes).

(13) Patching machines (tags).
(14) Pin-ticket machines (tags).
(15) Printing presses, automatically fed cylinder or platen.
(16) Rewinders, except those performing a splitting or cutting operation offering possibilities of contact with cutting edges.
(17) Sewing machines.
(18) Stripping machines (tablets).
(19) Taping machines (except corner stayers).
(20) Wiring and tag-stringing machines.

Taking away from the following machines:

(1) Corrugators and single or double facer machines.
(2) Die cutting and creasing presses, cylinder.
(3) Parchmentizing, waxing, and coating machines.
(4) Printing presses, cylinder.
(5) Quadruple stayers (set-up boxes).
(6) Roll slitters, slotters, scorers, and creasers, except when adjacent to unguarded point of operation.
(7) Sheeters.
(8) Wrapping machines, automatic (set-up boxes).

Observance of Legal Standards

In States whose laws or regulations establish minimum ages for any occupation higher than the ages suggested in this leaflet, the State standard should be observed. Legal restrictions on hours of work and night work should also be observed. Employment or age certificates should be obtained for all employees under 18 years of age.

Apprentices

It is usually possible to schedule the work of apprentices so that they do not operate the more hazardous machines until the latter part of their training period. When this is not possible, regularly indentured apprentices may operate or assist in the operation of platen and cylinder presses, provided such operation is necessary and incidental to their apprentice training and is under the direction and supervision of a journeyman.

These advisory standards are an emergency measure to protect young workers during this war period. Their issuance does not lessen the responsibility of the Chief of the Children's Bureau to issue hazardous-occupations orders under the Fair Labor Standards Act, nor does it mean that mandatory orders, when issued, will necessarily be the same as the suggestions contained in these advisory standards. Hazardous-occupations orders issued to date are listed on the following page.

The Children's Bureau will be glad to assist plants employing 16- and 17-year-old workers, or contemplating such employment, in developing policies for suitable use of these workers. Address inquiries to the Children's Bureau, U. S. Department of Labor, Washington 25, D. C.

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers.
No. 2—For Shipbuilding.
No. 3—For Lead and Lead-Using Industries.
No. 4—For Employment Involving Exposure to Carbon Disulfide.
No. 5—For Employment Involving Exposure to Chlorinated Solvents.
No. 6—For Welding Occupations.
No. 7—For the Operation of Metalworking Machines.
No. 8—For the Aircraft Industry.
No. 9—For the Pulp and Paper Industries.
No. 10—For the Textile Industries.
No. 11—For the Railroad Industry.
No. 12—For Foundries.
No. 13—For the Brick and Tile Industry.
No. 14—For the Converted Paper-Products Industries.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, apply an 18-year minimum age to employment in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

U. S. GOVERNMENT PRINTING OFFICE: 1945

331.3
Un34w
cop. 1

Which Jobs for Young Workers?

THE LIBRARY OF THE
DEC 20 1945
UNIVERSITY OF ILLINOIS

No. 15—Advisory Standards for the Slaughtering and Meat-Packing Industry

The young worker of today is the skilled worker of tomorrow—Protect him from injury

U. S. Department of Labor
Children's Bureau
November 1945

WHICH JOBS FOR YOUNG WORKERS IN THE SLAUGHTERING AND MEAT-PACKING INDUSTRY?

MEAT, always a major source of protein in the American diet, is an important factor in our economy in peace as well as in war. In normal times the United States produces one-third of the world's meat supply, the industry ranking eighth among manufacturing industries in employment.

The slaughtering and meat-packing industry ordinarily employs a number of 16- and 17-year-old workers. The employment of young workers in this industry presents an accident problem of no small proportion in view of the fact that the injury frequency rate for the industry is considerably higher than the average for all manufacturing industries.

This leaflet is the fifteenth in a series of advisory standards issued by the Children's Bureau as a special service to employers to assist them in placing their 16- and 17-year-old workers in the least hazardous jobs. Although a considerable part of the slaughtering and meat-packing industry is subject to the Fair Labor Standards Act of 1938 and, therefore, a field for mandatory orders, the Bureau is issuing this leaflet as advisory only, inasmuch as it was prepared prior to V-J Day. At a later date it may be succeeded by a legal order since the issuance of advisory standards, initiated during the war, does not lessen the responsibility of the Chief of the Children's Bureau to issue mandatory hazardous-occupations orders under the Federal act. Furthermore, a mandatory order would not necessarily have the same standards as those presented in this leaflet.

Jobs considered comparatively safe and those considered too hazardous are listed in the chart which follows. In determining which jobs are relatively nonhazardous for young persons, consideration has been given to existing physical hazards, and also to

unsuitable environment as represented by the killing department. Even though some of the jobs in the killing department are relatively free from physical hazards, young persons, because of their immaturity and greater sensitivity, should not be employed in this department.

Suggestions in this leaflet pertain to establishments engaged in one or more of the operations in slaughtering cattle, hogs, sheep, and other animals, the preparation of various cuts, and the further processing of meat into such products as sausage and canned meats. Preparation of poultry, rabbits, and other small game is not dealt with here, nor is the production of such byproducts as soap.

In small plants where it is necessary for employees to work on many or all processes, it is recommended that young workers not be employed at all because of the practical difficulty of limiting them to occupations considered comparatively safe. Because work in many departments involves heavy hand trucking and lifting, it is further recommended that young workers be assigned to work entailing only light hand trucking and lifting and that they be instructed in proper weight-lifting methods. Additional safeguards for employing young industrial workers, including training and supervision and a safe work place, are discussed in the first leaflet in this series.

Some of the occupations in the following chart, of course, require skill and experience possessed by few young workers. These are listed, however, in order to give a more complete coverage of the industry.

State Laws and Regulations

In States whose laws or regulations establish minimum ages for any occupation higher than the ages suggested in this leaflet, the State standard should be observed. Legal requirements for employment certificates and restrictions on hours of work and night work should also be observed.

WHICH JOBS FOR 16- AND 17-YEAR-OLD WORKERS IN THE SLAUGHTERING AND MEAT-PACKING INDUSTRY?

DEPARTMENT	COMPARATIVELY SAFE AND GENERALLY SUITABLE	TOO HAZARDOUS OR OTHERWISE UNSUITABLE
Yards	Cleaning empty pens; watering and feeding sheep and calves; watering and feeding stock, other than sheep and calves, when work does not entail entering pens; driving sheep and calves about yards and to killing floor.	Watering and feeding of livestock, other than sheep and calves, when work entails entering pens; driving livestock, other than sheep and calves, about yards and to killing floor; unloading stock from cars and trucks; handling bales, sacks of stock food, and other heavy materials; work on motortrucks
Killing department	None	All operations
Offal (other than hides and casings) department	Hand-washing and trimming glands, stomachs, weasands, hearts, tails, and tongues	All other operations such as trimming jaws, skulls, and other offal when bones are present; feeding and operating machines; cooking operations
Hide department	None	All operations

WHICH JOBS FOR 16- AND 17-YEAR-OLD WORKERS IN THE SLAUGHTERING AND MEAT-PACKING INDUSTRY?

DEPARTMENT	COMPARATIVELY SAFE AND GENERALLY SUITABLE	TOO HAZARDOUS OR OTHERWISE UNSUITABLE
Yards	Cleaning empty pens; watering and feeding sheep and calves; watering and feeding stock, other than sheep and calves, when work does not entail entering pens; driving sheep and calves about yards and to killing floor.	Watering and feeding of livestock, other than sheep and calves, when work entails entering pens; driving livestock, other than sheep and calves, about yards and to killing floor; unloading stock from cars and trucks; handling bales, sacks of stock food, and other heavy materials; work on motortrucks
Killing department	None	All operations
Offal (other than hides and casings) department	Hand-washing and trimming glands, stomachs, weasands, hearts, tails, and tongues	All other operations such as trimming jaws, skulls, and other offal when bones are present; feeding and operating machines; cooking operations
Hide department	None	All operations
Casing department	All work except the operation and feeding of stripping, crushing, and finishing machines	Operation and feeding of stripping, crushing, and finishing machines
Fresh-beef department and fresh-pork department (including work in coolers and freezers; cutting and trimming; boning; packing)	Trimming trimmings and cuts when bones have been removed, after proper instruction and adequate safety equipment have been supplied Weighing and wrapping operations Light packing operations such as putting meat into boxes, hand wiring of boxes, stamping, and hanging light cuts on racks or trees Operation of cloth-stitching machines; feeding belly-roll machines when semiautomatically fed; sweeping and clean-up; sorting operations and skin bundling; washing hooks and trolleys	Work which entails going in and out of coolers Shoving carcasses All skinning operations Work in freezers Dropping quarters or carcasses from overhead rails Cutting operations when bones are present Operating and feeding power-driven equipment such as ham saws, feet saws, band saws, scribe saws, side splitters, fleshing machines, skinning machines, and fatting machines Feeding belly-roll machines when not semiautomatically fed All boning operations
Lard and oleo oil department	Washing cans and labeling; packing operations such as lining boxes, feeding lard into cartons and boxes, and hand wiring of boxes	All other work, including the operation of carton-stitching machines and box-nailing machines
Sausage department	Most work such as stuffing casings, making links, hanging sausage on trucks or trees, stamping sausage, peeling wieners, and wrapping and tying	Operating and feeding choppers, grinders, and mixers; cooking and smokehouse operations; releasing stuffer heads and filling stuffers
Cured-meat department	None	All work, including operation and feeding of belly-skinning machines
Canning department	Most operations, such as washing and sterilizing cans, stenciling, can stuffing, sealing operations, labeling, jar filling, and packing in shipping cases	Grinding, chopping, mixing, and cooking operations Soldering when done outside of vacuum sealing machine; setting-up, adjusting, and oiling machinery; operating hoisting equipment, nailing machines, and power-driven wire-tying machines Operating and feeding bacon-forming machines, bacon and chipped-beef slicing machines, ham presses, and air-driven can-filling presses Releasing stuffer heads and filling stuffers Handling and shipping of cased products
Smokehouses	Placing meat in smokehouse before smoking operations are under way; preparation of meat for smoking such as stamping, placing hams and shoulders in stockinets, hanging, and cutting off stockinets	Operating or tending smokehouses; washing smokehouses
Inedibles or tankhouse department	None	All operations
Icing	None	All operations, including icing refrigerator ca[illegible]
Shipping and storage department and vehicles	Can tapping, hand wiring of boxes, labeling, stamping, and similar operations; collecting, weighing, and packing light meat products for local delivery	Operating and feeding nailing machines and carton-stitching machines; loading carcasses into cars; lifting and transferring heavy boxes; operation of all motor-driven vehicular equipment, including fork lifts, transfers, and tugs. (Hazardous-Occupations Order No. 2 applies an 18-year minimum age to the occupations of motor-vehicle driver and helper.)
Box shop	Labeling and hand-wiring operations	Hazardous-Occupations Order No. 5 applies an 18-year minimum age to the occupations of operating and feeding power-driven woodworking machines
Miscellaneous handling of materials	Light hand trucking and lifting	Heavy hand trucking and lifting; operation of elevators, cranes, hoists, and other power-driven material-handling equipment
Power-plant and plant-maintenance operations	None	All work

U. S. GOVERNMENT PRINTING OFFICE 16—46462-1

Advisory Standards Issued to Date

No. 1—Advisory Standards for the Safe Employment of Young Workers.
No. 2—For Shipbuilding.
No. 3—For Lead and Lead-Using Industries.
No. 4—For Employment Involving Exposure to Carbon Disulfide.
No. 5—For Employment Involving Exposure to Chlorinated Solvents.
No. 6—For Welding Occupations.
No. 7—For the Operation of Metalworking Machines.
No. 8—For the Aircraft Industry.
No. 9—For the Pulp and Paper Industries.
No. 10—For the Textile Industries.
No. 11—For the Railroad Industry.
No. 12—For Foundries.
No. 13—For the Brick and Tile Industry.
No. 14—For the Converted Paper-Products Industries.
No. 15—For the Slaughtering and Meat-Packing Industry.

Hazardous-Occupations Orders

These orders, issued under the child-labor provisions of the Fair Labor Standards Act of 1938, apply an 18-year minimum age to employment in the occupations covered.

No. 1—Occupations in explosives plants.
No. 2—Motor-vehicle drivers and helpers.
No. 3—Occupations in coal mining.
No. 4—Occupations in logging and sawmilling.
No. 5—Operation of power-driven woodworking machines and certain types of off-bearing.
No. 6—Occupations involving exposure to radioactive substances.

Copies of the publications listed on this page are available upon request to the Children's Bureau.

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON

16—46462-1